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In The

# SUPREME COURT OF THE UNITED STATES

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No. 3-Original, October Term, 1944.

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THE STATE OF NEBRASKA, COMPLAINANT,

V.

THE STATE OF WYOMING, DEFENDANT,

AND

THE STATE OF COLORADO, IMPLEADED DEFENDANT.

THE UNITED STATES OF AMERICA, INTERVENOR.

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## BRIEF OF STATE OF NEBRASKA, COMPLAINANT.

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In The

# SUPREME COURT OF THE UNITED STATES

No. 7 Original, October Term, 1944.

THE STATE OF NEBRASKA, COMPLAINANT,

V.

THE STATE OF WYOMING, DEFENDANT,

AND

THE STATE OF COLORADO, IMPLEADED DEFENDANT.

THE UNITED STATES OF AMERICA, INTERVENOR.

## BRIEF OF STATE OF NEBRASKA, COMPLAINANT.


WALTER R. JOHNSON,
Attorney General,
JOHN L. RIDDELL,
Assistant Attorney General,
PAUL F. GOOD,
Special Counsel,
*Attorneys for Complainant.*


## JURISDICTIONAL STATEMENT.

Jurisdiction of this controversy is found in Article III, Section 2 of the Constitution of the Un[illegible]d States; *Kansas* v. *Colorado*, 206 U. S. 46; *Missouri* v. *Illinois*, 180

U. S. 208; *Wyoming* v. *Colorado*, 259 U. S. 419. This court has already overruled Wyoming's motion to dismiss this suit (*Nebraska* v. *Wyoming*, 295 U. S. 40).

## STATEMENT OF THE CASE.

Instead of attempting anew to make a concise statement of the case as required by Rule 27, Section 2 (d), Nebraska adopts the statements of fact contained in pages 16 to 99, inclusive, of the Master's report except in the following items as to which Nebraska has taken exception:

(1.) On page 22 certain erroneous statements are made in connection with river flow and contributions by the states respectively. On lines 5 to 8, inclusive, the Master overlooked the fact that the contribution to the main stream through the Laramie River contains 184,100 acre-feet from Colorado. This must be further qualified by the fact that, because of large consumptive uses from the Laramie between the Colorado-Wyoming state line and the junction of the Laramie with the North Platte, its total contribution to that stream is only 132,000 a. f. (see Engineer's Stipulation, p. 4).

On the next three lines reference is made to contribution to the main stream in the section of 140 miles from the state line to the Kingsley Reservoir. The figure given comes from Colorado Exhibit 168 and actually represents the contribution from the Wyoming-Nebraska line to the City of North Platte, Nebraska. Moreover, this figure and the figure on line 19 of the same page of 1,336,090 includes 400,000 acre-feet of unusable water, namely, 128,000 acre-feet retained in ground storage and 270,000 acre-feet lost in river conveyance (see

Colorado Exhibit 127, Sheet 3). The figure of 1,731,600 acre-feet shown on line 18 as contributed by Wyoming includes 248,800 acre-feet estimated annual loss in river conveyance, and, therefore, unusable water as shown by Colorado Exhibit 127, Sheet 1.

(2) On page 29 in the last four lines above the footnote, Nebraska contends that the Master over-emphasizes the importance of return flow waters from the North Plate project in the development of 70,650 acres in Nebraska since 1910.

(3) In Table II, on page 59, and line 2, page 60, and line 13, page 61, Nebraska contends that the estimated requirement for the lands in the Whalen to Tri-State Dam section is underestimated. The same applies as to the requirement figure in Table III on page 67, Table IV on page 71 and Table V on pages 73 to 75. Similarly with the requirement figure for the Tri-State Canal in Table XII on page 78 and Table XV on page 81 as well as Table XVII on page 86.

(4) Nebraska disagrees with the statement at lines 10 to 14 inclusive on page 91 as to the proof of damage to Nebraska by wrongful uses of water in Wyoming and Colorado.

(5) Nebraska disagrees with the Master's recommendation in the last seven lines above the footnote on page 92 and lines 8 to 12 on page 96 eliminating the canals east of the Tri-State Dam from demands upon waters originating above the Wyoming-Nebraska line.

(6) Nebraska considers that the Master's Table XVIII, page 93, is erroneous in underestimating the re-

quirements and river demands of the Winters Creek, Central and Alliance Canals.

Except as above stated, Nebraska is satisfied with the Master's statement of facts, and rather than burden the court with the repetition, wishes the Master's statement to be considered as Nebraska's.

## SPECIFICATION OF THE ASSIGNED ERRORS.

Rule 27, 2 (e) is not exactly applicable to the instant controversy, because it is apparently intended to relate to a proceeding in certiorari. Nebraska has filed its exceptions to the Master's report, and this brief is directed to those exceptions. It is, therefore, convenient at this point to present a brief outline of the points which will be argued in this brief. They are as follows:

I.

Nebraska contends that the Master's report is in error as to the actual and immediately threatened damages to Nebraska by action of the upper states, Wyoming and Colorado (see Items 13 and 20 of Nebraska's exceptions).

II.

The water supply in the North Platte River is inadequate to meet the present needs of appropriators and irrigation water users.

III.

Since the principle of priority of appropriation is the rule applied for the distribution of water in all three states (see Master's report, pp. 11-16), it is the basic and controlling principle in the equitable apportionment of

waters in this suit and should not be qualified as recommended by the Master in his report, pages 112 to 115 and pages 148 to 159 (see Items 21, 23 and 26 of Nebraska's exceptions).

IV.

Distribution of water in the section commencing at the Whalen Dam and running east should be on the basis of priority of appropriation by a priority schedule (see Items 1, 21, 23, 26, 32 and 33 of Nebraska's exceptions).

V.

The Master's report is in error in not affording protection to Nebraska appropriators east of the Tri-State Dam and in not awarding to Nebraska sufficient of the available water to give to senior appropriators in the Tri-State Dam to Bridgeport section water according to their priorities and according to Nebraska law (see Items 2, 14, and 18 of Nebraska's exceptions).

VI.

The Master's report is in error as to the distribution and apportionment of water below Whalen in the following respects:

(a) In distributing the water between Whalen and the Tri-State Dam on a percentage basis of twenty-five per cent to Wyoming and seventy-five per cent to Nebraska, it being Nebraska's contention that this is insufficient for Nebraska (see Items 5, 12, 24, 26, 27 and 32 of Nebraska's exceptions).

(b) If no priority schedule should be adopted, then distribution of the water should be made according to

the amount of flow giving amounts to Wyoming and Nebraska respectively in accordance with amounts justified by the respective priorities as shown on Table XVII, pages 86 to 87 of the Master's report (see Items 28, 32 and 34 of Nebraska's exceptions).

(c) The Master's report erred in failing to recommend in paragraphs 3(a) and 3(b) of the proposed decree (Master's report, pp. 177-178) that protection be given to the priority of the Nebraska lands in the North Platte Project against the junior Kendrick Project (see Item 29 of Nebraska's exceptions).

(d) The Master's report is in error in giving an inadequate allowance of water to Nebraska lands between Whalen and Tri-State Dam (see Items 12 and 32 of Nebraska's exceptions).

VII.

The Master's report is in error in allowing an excessive amount of water to Colorado (see Items 3 and 22 of Nebraska's exceptions).

VIII.

The Master's report is in error in allowing an excessive amount of water to Wyoming (see Item 4 of Nebraska's exceptions).

IX.

The Master's report is in error in determining too small an acreage and allowance of water to the following Nebraska appropriations:

(a) Tri-State Canal or Farmers Irrigation District (Items 11, 30 and 31 of Nebraska's exceptions).

(b) Winters Creek Canal (Item 15 of Nebraska's exceptions).

(c) Central Canal (Item 16 of Nebraska's exceptions).

X.

The Master has made erroneous findings as to water supply, particularly on page 22 of his report (see Items 6 to 9 of Nebraska's exceptions).

XI.

The Master's report is in error in failing to treat the storage water in accordance with the legal rights of the appropriators entitled thereto (see Items 19 and 25 of Nebraska's exceptions).

XII.

Certain miscellaneous errors in terminology made in the Master's report should be corrected and are discussed.

## ARGUMENT.

### I.

### The Actual and Threatened Damage to Nebraska are Sufficient to Justify Relief in This Cause. (See Nebraska Exceptions, 13 and 20)

The Master reaches the conclusion that under the law and the evidence herein, the complainant is entitled to maintain the action and that a decree should be entered making an equitable apportionment of the waters. This is the conclusion reached in the section of the report,

pages 106 to 113, conclusion numbered 10, pages 10 to 11, and pages 121 to 123. With the reasons affirmatively assigned by the Master for the conclusions reached, we naturally have no quarrel. We believe that they are sufficient. However, we wish also to urge that the negative statements, contained on page 105, do an injustice to Nebraska's proof and that in point of fact the evidence and the findings of fact as shown by the Master's report itself compel the conclusion that Nebraska has shown both grave injury in the past and immediate threat of very serious injury. While the argument which we are making under this point really supports the general conclusions of the Master, we believe it is appropriately included in this brief for the reason that exception is taken by Nebraska to the negative finding on page 105 (Exceptions No. 13 and 20).

We will discuss this point under five headings: first, the over-appropriation of the river; second, the refusal by water officials of Wyoming to limit diversions in Wyoming; third, the situation in the Colorado and upper Wyoming portions of the basin, as shown by the Master's report, requires control; fourth, the facts shown in the Master's report show that even in times of greatest scarcity, Wyoming appropriators have received an ample supply of water in spite of the deficiencies in the Nebraska supply, and fifth, the threat from the Casper Alcova (Kendrick) Irrigation Project is so great that equity requires action by this court to prevent encroachment upon Nebraska's equitable share of the river.

1.

## THE NORTH PLATTE RIVER HAS LONG BEEN OVER-APPROPRIATED.

As the Master points out on page 37 of his report, the central fact in this litigation is that "the dependable natural flow of the river during the irrigation season has long been over-appropriated." This fact is conceded by all of the parties, but because of its basic and fundamental character, it is often lost sight of. The total annual flow in acre-feet does not and cannot tell the story. Growing of crops under irrigation must be based upon dependable flow at the right time. This is recognized in *Wyoming* v. *Colorado*, 259 U. S. 419, and likewise in *Arizona* v. *California*, 283 U. S. 423, and *Arizona* v. *California*, 298 U. S. 558.

The discussion on pages 82 to 85 of the Master's report shows clearly the greatest problem connected with the use of the waters of the North Platte River. Table XVI, on page 83, shows the actual demand of the irrigation projects for water in percentages by months, treating the irrigation season as May to September, inclusive. The Master's "ideal" distribution at which he arrives by analyzing the evidence of experts who testified, is compared with the actual diversions of the canals supplying Nebraska lands and diverting in the Whalen to Tri-State Dam section. This tabulation shows that both under the "ideal" distribution and under the actual diversions, the greatest demand is in the month of July. Next comes August and June. Since all but two of the canals listed in Table XVI rely in part upon storage water, the actual distribution of diversions shown does not reflect the natural flow supply available, but it is significant that

the two natural flow canals, Mitchell and Ramshorn, are the ones showing distribution below normal or ideal for August and September.

The other side of the picture, namely, distribution of supply, is found in the tabulation at the top of page 84 showing for five consecutive years, commencing in 1931, the inflow into Pathfinder Reservoir in second-feet. This inflow consists entirely of natural flow and is not distorted by quantities of released storage water being carried in the river channel for the benefit of storage users as would be the case with recorded flows below the outlet of Pathfinder Reservoir. It is noteworthy that usually the maximum flow for the irrigation season occurs in June, although sometimes in May. There is a sharp falling off in July and still greater falling off in August and September. Table XVI showing the ideal distribution shows that during the months of July and August, fifty per cent of the seasonal supply should be made available. If September is added, we find that the demand for those three months is approximately two-thirds of the total seasonal demand although the flow is very considerably below a similar proportion of the total irrigation season flow. Thus, the dependable natural flow cannot be reckoned in terms of total annual flows. When the total appropriations of natural flow is compared with the flow during the critical irrigation season months, such as July, August and September, the deficiencies will become apparent.

The situation peculiarly calls for the application of the principle announced by Mr. Justice Holmes in *New Jersey* v. *New York*, 283 U. S. 336 at page 342, namely, that a river "offers a necessity of life that must be rationed

among those who have power over it." When the demand for a necessity of life exceeds the supply, enlightened nations have always followed the practice of taking control of the limited supply and distributing it in some fair and equitable manner. The present controversy grows out of the inequitable distribution which results when those having the power over the supply (namely, the upper states) exercise that power for the exclusive benefit of their own citizens and in complete disregard of equitable rights and interests of those below them.

## 2.

## THE DECLARED PURPOSE OF THE OFFICIALS OF WYOMING AND COLORADO TO DISREGARD EQUITABLE RIGHTS OF CITIZENS OF NEBRASKA.

As pointed out by the Master on page 37 of his report, the water officials of both of the upper states (Wyoming and Colorado) have consistently refused to act in any way which would assure to Nebraska and its water users their equitable share of the waters of the river. This finding of fact by the Master is amply supported by the evidence. In the appendix wherein we have printed the portions of the record which we have selected as important in the decision of the case, we have given the testimony bearing upon this point (see Testimony of R. H. Willis, Chief of Nebraska Bureau of Irrigation, R. pp. 621-624 and 626-629, and C. G. Perry, R. pp. 632-636). It is noteworthy that this testimony has never been contradicted nor is it shown in the record that the water officials of Wyoming have ever receded from their position.

Probably the water officials as individuals are not to be criticized for their policy and their program of action.

They are, of course, bound by the laws of their states and are merely carrying into effect the policy of the people and the legislatures to which they are responsible. However, the State cannot disclaim responsibility for their action. The State of Wyoming by its laws and its declared policy has definitely created the situation whereby the intervention of this court becomes necessary. The policy of the State is peculiarly important in this controversy in relation to the Kendrick or Casper-Alcova Project which will later be discussed in this portion of the brief. It is a part of the threat which impends and renders certain the damage to Nebraska appropriators of which they are justifiably apprehensive.

## 3.

## THE RECOMMENDATIONS WITH REFERENCE TO COLORADO AND WYOMING ABOVE PATHFINDER DEMONSTRATE THE NECESSITY OF A DECREE.

On pages 130 to 132 of the report, the Master discusses the possibility of future development in the North Platte Basin in Colorado, namely, Jackson County, Colorado, or "The North Park." In this portion of the report, the Master points out that Colorado's program for further development in the North Park region constitutes a threat of serious magnitude. He makes it clear that Nebraska would be seriously damaged by the depletion of the water supply incident to the irrigation of 30,000 to 100,000 additional acres. The question which he raises is of the imminence of the threat, since he considers it doubtful that Colorado would undertake expansion of irrigation in North Park under present drouth conditions.

On the other hand, he mentions the "position, intention and claims of Colorado" as "constituting a threat of further depletion of the river within North Park."

This brings to the front the peculiarly delicate position in which the lower state is placed. Under the decisions of this court, the lower state could not wait to bring its suit until development had reached the stage of large expenditures of money and acquisition of vested interests based upon such expenditures. This is the effect of the recent decision of this court in *Colorado* v. *Kansas*, 320 U. S. 383.

As a corollary to the principle announced in *Colorado* v. *Kansas*, the duty would seem to be incumbent upon the lower state to take action before equitable rights have been acquired by the expenditure of money. It would seem to be hardly consistent for the upper state to assume the position in the litigation which Colorado has assumed, and at the same time state that the threat should not be taken seriously. As the Master points out, Colorado in this litigation including its answer and cross petition has declared certain purposes and made certain claims. It hardly lies in the mouth of counsel for Colorado now to state that those claims are speculative and that the purposes are not to be taken seriously.

Similar conditions exist with reference to the Wyoming area above Pathfinder. Mention is made in the Master's report, on pages 50 to 51, of five projects for this area which have reached the stage of definite proposals for development and some of which have been partially constructed. These have all reached the stage of formal application for permits and seem to be definite threats. The damage to Nebraska which would eventuate if the

projects are constructed is discussed on pages 135 to 136 of the Master's report.

If the threat of future development in North Park might be considered somewhat remote in spite of the declared intention of Colorado, the Wyoming threat is indeed imminent. Even a disclaimer on the part of counsel for Wyoming could hardly meet the situation, since it is evident that these projects are the result of private initiative, and the claims made in the applications for permits purport to be for the acquisition of rights in these individuals under the laws of Wyoming. Only an act of the legislature of Wyoming having the effect of recognizing existing rights in Nebraska as superior to the rights which might ultimately result from the construction of these projects, would result in removing the threat.

4.

THE FINDINGS AS TO ACTUAL SUPPLY OF IRRIGATION WATER IN THE WHALEN TO TRI-STATE DAM AREA SHOW AN INEQUITABLE DISTRIBUTION IN TIMES OF SHORTAGE.

On pages 76 to 82 of the Master's report, including Tables VII to XV, inclusive, an analysis is made of the principal canals in the Whalen to Tri-State Dam section matching the actual diversions with the requirements as determined by the Master and showing percentages. Although we have taken exception to the requirement figure assigned to the Tri-State (and this will be discussed at a later point in the brief), for present purposes we will assume the requirement figure as stated by the Master.

It should be remembered that the period covered, namely, 1931 to 1940, inclusive, is the period repeatedly described by the Master as the drouth period, and it is conceded by all parties that this ten year period is a period of the lowest water supply of any consecutive ten year period for which records are available. The tabulation, at pages 23 to 24, and the graphic representation of this tabulation, on page 25, shows that the years 1931, 1934, 1935, 1939 and 1940 were each lower in water supply than any year before 1931, and two of the years, 1934 and 1940, were tremendously deficient in water supply. The respective diversions of the nine Wyoming private canals shown in Table IX, as contrasted with the canals in which Nebraska is interested, gives a striking and pointed proof of the inequity of the distribution of deficient supplies of water as between Nebraska and Wyoming canals in the same section. The tabulation in Table XV, page 81, shows the startling contrast. Table IX shows that the nine Wyoming canals received greatly in excess of their requirements every year except 1931 when their diversions approximated the requirement being 98 per cent. In the two driest years of all, namely, 1934 and 1940, the Wyoming canals received 113 per cent of their requirement for 1934 and 138 per cent of their requirement for 1940. The Mitchell Canal, which was being protected by Wyoming as a Wyoming canal in 1934, then received 97 per cent of its requirement, but after control of Mitchell passed to Nebraska and Wyoming refused to recognize the priority assigned to it, its treatment was vastly worse, and in 1940 it received only 46 per cent of its requirement where the nine Wyoming private canals received 138 per cent. Expressed as comparative figures, it might be said that Mitchell and indeed all of the river canals

were treated one-third as favorably in the drouth year of 1940 as were the nine Wyoming private canals.

The damage to Nebraska lies not only in the excessively favorable water supply given to the Wyoming canals while the Nebraska canals received less than 50 per cent of their requirements; the damage is also in the injustice which Nebraska farmers cannot but perceive where their neighbors just across the line have thirty per cent more water than the requirements call for while the Nebraska farmer must get along with less than fifty per cent of the water that he needs. Such contrast is harmful to orderly administration in Nebraska. It destroys the morale of the farmer as a law abiding citizen, having the tendency to induce him to seize all he can since he sees the Wyoming appropriators successfully pursuing that policy.

The exact relationship of Nebraska priorities and needs in relation to the Wyoming canals was carefully worked out by Nebraska engineers, and the results are discussed in the Master's report, pages 102 to 105. These results are parallel to the obvious impression obtained by inspection of Tables VII to XV. No analysis was made by Nebraska engineers of the out of priority diversions for the years 1939 and 1940, since by the time the data was available, Nebraska had rested its case in chief, and the proof would require many more days and would have added many more hundreds of pages to an already extended series of hearings and record. It seems obvious, however, that on an out of priority study, the 1939 results would have produced a parallel to the 1935 results, and the 1940 out of priority water taken by Wyoming would be similar to that of 1934.

The inescapable conclusion from the Master's findings is that throughout the drouth period, Wyoming canals diverted water in excess of their requirements and without regard to priorities, and that this water, under any priority administration, should have gone to the senior Nebraska appropriators. The long continued conduct of Wyoming and its water authorities created not only damage to Nebraska; it rendered the threat on the part of the Wyoming authorities that in bad years as well as good; in years of low flow as well as plentiful flow; in times of drouth and in times of ample water supply, Wyoming would never cease to divert the water regardless of the needs of Nebraska appropriators.

Even though Nebraska's priorities are not recognized it seems evident that the Wyoming appropriators must be limited in their diversions to their requirements and must no longer be allowed to take excessive supplies of water when the result is to reduce Nebraska appropriators to less than fifty per cent of the amount they need.

5.

THE KENDRICK (CASPER-ALCOVA) PROJECT CONSTITUTES AN IMMINENT THREAT OF SERIOUS MAGNITUDE WHICH IS ESTABLISHED BY CLEAR AND CONVINCING EVIDENCE.

From the beginning of this suit Nebraska has sought to restrain this project and to keep it from encroaching upon already existing rights. It is discussed in the Master's report, on pages 35 and 137 to 143, as well as in some of its more detailed and technical phases, on pages 267 to 269. As shown on page 138, priority dates are December 1, 1931, for the Seminoe Reservoir; July

27, 1934, for the Casper Canal, and April 25, 1936, for the Alcova Reservoir. This suit was started in October, 1934, before construction had commenced upon any of the units of the Kendrick Project. The attack was made in the eleventh article of Nebraska's original bill of complaint appearing on pages 25 to 29 of the bill of complaint. The United States Bureau of Reclamation, as an appropriator under Wyoming laws, saw fit to proceed with construction in spite of the pending law suit, and construction has been completed of the two reservoirs, the hydro-electric plant and of the first unit of the irrigation project which is capable of serving 35,000 acres. At the time of the commencement of the suit, the Secretary of the Interior had asked for and had obtained from the Wyoming irrigation authorities a priority date of 1904, on a parity with the units of the North Platte Project. This attempted assignment of priority date was attacked by Nebraska in Article XI of the original bill of complaint, and subsequently, prior to any action by this court (except the permission granted to file bill of complaint), both the Secretary of the Interior and the State of Wyoming receded from their positions previously taken. An amended application was filed by the Secretary of the Interior on February 21, 1935, and the priority dates were assigned as indicated on page 138 of the Master's report (see Nebraska Exhibit 429).

However, the threat of damage from the Casper-Alcova lies not alone in the priority date. Insofar as it is operated in accordance with the declared policy of the State of Wyoming, it will be operated in entire disregard of priority rights and water supply for the Nebraska projects. In spite of the fact that it is the most junior project on the river west of the Kingsley Reservoir, its

water supply would be assured and guaranteed by the State of Wyoming regardless of the effect upon Nebraska appropriators. The evidence is clear that its unrestrained operation would bring about for Nebraska the same result as was anticipated by the court as the result of the proposed decree proposed by the Master in *Colorado* v. *Kansas,* 320 U. S. 383. We quote the language of this court on that point:

> "How great the injury would be it is difficult to determine, but certainly the proposed decree would operate to deprive some citizens of Colorado, to some extent, of their means of support. It might indeed result in the abandonment of valuable improvements and actual migration from farms. Through practice of irrigation, Colorado's agriculture in the basin has grown steadily for fifty years. With this development has gone a large investment in canals, reservoirs, and farms. The progress has been open. The facts were of common knowledge."

The most outstanding fact is that if Kendrick were to be operated upon a priority basis, no water would have been available for it since 1930. This means that if Kendrick had been put into operation at any time in that fourteen year period, it could only have been at the expense of existing irrigation by withdrawal of water from appropriators whose very life depends upon their supply of water. Predictions for the future are, of course, difficult. We believe that by its decree, this court will make an allocation or equitable apportionment of the dependable supply of water in the North Platte River.

To apportion any water for the benefit of the Casper-Alcova Project requires the assumption that there will

exist in the future a supply that has not existed for fourteen years. To assume that such a supply is dependable is to fly in the face of reason; and it cannot be said that in spite of the fact that continuously for fourteen years it has not been available, nevertheless irrigators can depend upon such a supply.

Moreover, it is evident that it will be Nebraska appropriators who suffer and not Wyoming appropriators. Wyoming enforces priorities internally and could not permit the Casper Canal, the most junior appropriation in Wyoming on the river, to take water that is needed for other Wyoming appropriators.

An analysis of the records, as shown in the Master's report, demonstrates clearly what would be the effect on the Nebraska canals from Whalen to Tri-State Dam if the Casper Irrigation District or the entire Kendrick Project were allowed to operate without regard to priorities. We must start with the assumption of a net irrigation season depletion of 122,000 acre-feet. This is evidenced by the analysis, on page 138 of the report, which, in turn, is based on United States Exhibit 143 and Wyoming Exhibit 171 and not disputed by any of the parties. This is based upon an estimated headgate diversion into the Casper Canal of 168,000 acre-feet and a summer or irrigation season return flow of 46,000 acre-feet, which would leave the net amount as stated.

If the operations had commenced at any time since 1930, all of these depletions must necessarily have been subtracted from the supply available for current year consumption in the area below the Alcova Dam outlet.

It is true that the engineers testifying for Wyoming and the United States, respectively (Messrs. Nelson and Dibble), presented studies which attempted to show operations through the drouth period assuming the commencement of the Kendrick Project operations in 1926. It is obvious from a reference to the table, pages 23 to 24, and the graphic representation, on page 25, that this included four successive years (1926 to 1929, inclusive) of above average flow at Pathfinder which would have made possible the carry-over storage in Seminoe Reservoir for a few years. It is equally obvious that in the fourteen years, 1930 to 1943, inclusive, there was not even sufficient flow in any of said years to fill Pathfinder Reservoir, and that for that period, any water which might be used in the Casper Irrigation District must be subtracted from the supply for existing irrigation projects.

Since the administration of the river in the State of Wyoming is in the hands of Wyoming authorities, it is unquestioned that, unless restrained by the court, the encroachments of the Kendrick Project irrigation upon the supply would necessarily be upon the Nebraska supply rather than the Wyoming supply. This is evidenced by the attitude of the Wyoming irrigation authorities, referred to supra, and shown by the evidence quoted in the appendix (R. pp. 621-624, 626-629 and 632-636). Moreover, as the Master's report shows (pp. 11-16), Wyoming's internal administration of water is upon the basis of priority administration. Wyoming would not allow the diversions of its most junior appropriator on the river to take water to the damage of its senior appropriators; in fact, under its own laws, it could not allow such an encroachment. Therefore, the 122,000

acre-foot depletion would necessarily come out of the supply for Nebraska lands.

In the following table, all of the figures in which are taken from the tables contained in the Master's report as indicated in the table, we show what would be the effect upon Nebraska appropriators in the state line canals and the canals of the North Platte Project of the loss of 122,000 acre-feet during the irrigation season of 1940. It is impossible to tell in any one season how much of the waters taken by Wyoming out of priority would be subtracted from the Pathfinder storage supply and how much from the natural flow. Since, however, most of these canals have both storage and natural flow rights, it does not greatly matter. It is assumed that Tri-State Canal would not have been greatly affected, and, therefore, its diversions are left out of the table. Tri-State got almost no storage water in 1940, as shown by the second section of the table which is taken from the Nebraska Twenty-third Biennial Report. So far as natural flow is concerned, under a Nebraska administration the Tri-State with its early priority would not be deprived of natural flow until the juniors were out of natural flow, and, therefore, it is assumed that Tri-State natural flow rights would not have been very substantially affected by out of priority operation by Kendrick.

The following is the table:

## TABLE I

Showing Effect On Principal Water Users of Pathfinder Storage Water of Withdrawal of 122,000 a. f. From Pathfinder Reservoir Supply in 1940 (from Tables VII, VIII, XI and XIV, Master's Report pp. 76-79).

| Canal | Requirement | 1940 Diversion | Percentage of Diversion to Requirement |
|---|---|---|---|
| Interstate (including Lingle and Hill) | 465,000 a. f. | 209,200 a. f. | 45 |
| Ft. Laramie | 285,177 | 138,100 | 48 |
| Gering | 36,000 | 15,160 | 42 |
| Northport | 54,600 | 24,500 | 45 |
| Total | 840,777 | 386,960 | 46% |
| Less net depletion from Kendrick (Master's Report, p. 138) | | 122,000 | |
| | | 264,960 | 31% |

NOTE: Other Nebraska Warren Act contractors are omitted from the above table because their uses of storage water in 1940 were comparatively small, as shown by following table of storage water used, taken from Nebraska 23rd Biennial Report (reference to pages of the Biennial):

| Canal | Amount of Storage Water Diverted 1940 | Ref. to p. of Nebr. 23rd Biennial |
|---|---|---|
| Central | 385 a. f. | p. 761 |
| Chimney Rock | 934 | p. 763 |
| Beerline | 450 | p. 754 |
| Browns Creek | 2425 | p. 759 |
| Tri-State | 339 | p. 827 |

It is to be noted that the supply for all of these canals was already so short of the minimum requirements as found by the Master that there cannot but have been substantial damage to crops under those projects. When

the already short supply is reduced to the point where the canals are receiving less than one-third of their requirements, the condition becomes indeed alarming. This can be contrasted with the Wyoming experience in 1940 (Table IX of the Master's report, p. 77), since the nine Wyoming private canals, in 1940, received 138 per cent of their minimum requirement and, as above shown, they would not have been affected by the operation of the Kendrick Project. It might be said that in a year such as 1940, the Wyoming canals in the Whalen to Tri-State Dam area would receive treatment four times as favorable as that accorded to the Nebraska canals in the same area as contrasted with only three times as favorable which they actually received in 1940.

## II.

## The Dependable Supply in Relation to the Distribution and Demand.

One of the most difficult problems in an equitable allocation of the waters of a fluctuating stream such as the North Platte is the determination of the supply. As this court pointed out in the case of *Wyoming* v. *Colorado*, 259 U. S. 419, 66 L. Ed. 999, averages cannot be taken as the basis upon which a distribution can be made. We quote:

> "This suffices to show that the average of all years is far from being a proper or safe measure of the available supply. An intending irrigator acquiring a water right based on such a measure would be almost certainly confronted with drought when his need for water was greatest. Crops cannot be grown on expectations of average flows which do not come, nor on recollections of unusual flows which have passed down the stream in prior years. Only

when the water is actually applied does the soil respond."

Yet the fluctuations in the North Platte River are even greater than in the Cache la Poudre River and the Laramie River which were studied in that case. The Master recognizes these difficulties in the discussion contained in his report, particularly with reference to the water shortage which commenced in the year 1930. In addition to numerous references to it as the "dry cycle" or "drought period" the Master particularly discusses the problems growing out of the period in question on pages 39 to 41, 61 to 62, and 119 to 121. On page 119, he refers to "the experience of the 37 years ending in 1940." For this purpose his statement might well be amended to refer to the forty year period ending in 1943, since the graph, shown on page 25, covers that forty year period and shows that the years 1941, 1942 and 1943 followed much the same pattern as the preceding eleven years. For example the merest inspection of this graph shows that the three year period, 1941 to 1943, inclusive, was substantially less than the three year period, 1936 to 1938, inclusive. Thus, instead of a thirteen year drought period referred to on page 62, we have actually a fourteen year drought period or fourteen consecutive years at the end of the forty year period which are substantially deficient in water supply in relation to the forty year mean.

If the question be looked at from the point of view of the Colorado-Wyoming case, supra, as a matter of "dependable supply," it would seem that the answer is obvious. When the supply is deficient for a continuous period, which covers more than one-third of the span

of the entire period of recorded flow, it is impossible in all reason to say that the dependable supply is the supply that would even approach the average figure for the period. The percentage deficiency in relation to the mean for the thirty-seven year period ending in 1940, the percents being given for each of the ten years from 1931 to 1940, is shown on page 39. In the Wyoming-Colorado case, supra (259 U. S. at pages 475 to 476), the analysis of the variation in supply in comparison to a thirty year average indicates that a deficiency of 33 1/3% in four out of thirty years creates an alarming condition. It should be noted that in the last ten years five had greater than a thirty-three per cent deficiency and one as much as a seventy per cent deficiency.

It might be suggested that in relation to the hundreds of thousands of years during which, as geologists inform us, the area covering the North Platte Basin has had substantially its present conformation and its present animal and vegetable life, the forty year period of experience from 1904 to 1943 is extremely short. We are still gathering knowledge as to what the climate and water supply of this area is. White men have lived in this area for only approximately 90 years, and we can hardly assume that a fourteen year continuous period of below average water supply is so unusual that it will never be repeated.

Equally, of course, it must be conceded that the preceding twenty-six years of more ample water supply may likewise represent something more nearly normal. It is noteworthy, however, that of those twenty-six years, only ten exceeded the average of 1904 to 1930 in flow, and only fourteen exceeded the average of the 1904 to

1940 flow. In other words, the greatly deficient flows of the last fourteen years are not unusual since similar flows occurred in 1908, 1910, 1915 and 1919. The only unusual feature is the fact that these have occurred in a continuous period. None of the expert witnesses called upon on climatological conditions were willing to hazard a prediction as to how long the present drought period would last; as to whether it would ever be broken; or as to when a similarly long drought period might recur. The consensus of opinion among the experts was that there is no scientific evidence for any cyclic theory of the weather in the sense of recurring periods at definite intervals.

Obviously a distribution of water cannot be made on the hope of average flows which may not come nor on recollections of unusual flows which have passed down the stream in prior years. Obviously, we cannot be sure that the average of the last fourteen years will be repeated or that the average of the ten years, 1931 to 1940, inclusive, which is substantially the same, will recur. Equally, obviously, we cannot depend upon anything substantially in excess of that however great our hopes may be of such excesses.

We would suggest as the dependable flow at Pathfinder the figure 921,090 acre-feet, the average for the ten year period, 1931 to 1940, or 945,200 acre-feet, the average of the fourteen year period, 1930 to 1943, inclusive.

## III.

## The Principle of Priority of Appropriation is the Basic Principle For Solution of This Controversy.

(See Items 21, 23 and 26 of Nebraska's Exceptions)

Any understanding of the water law of the western states must be predicated upon the principle of priority of appropriation. Long continued custom which has developed practically with the force of law has established this principle as the basic law governing the use of waters. This custom has ripened into statutory and constitutional provisions and is basic and fundamental in the thinking and planning of every person dealing with waters in the western states. We believe that the Master has insufficiently recognized this principle in his recommendations for a decree and that the correction of this underemphasis is extremely important.

In the exceptions which Nebraska has taken, particularly Items 1, 21, 23, 26, 32 and 33, we have called attention to the errors which we believe are contained in the report and which grow out of the failure to observe this basic principle. We appreciate the fact that the Master considers priorities to be the most important single factor in the solution of the problem (Report, pp. 9, 112-113). We believe, however, that under the law, including the precedents in this court, in the inferior federal courts, and in the courts of all three states involved, as well as in the record in this case, priority of appropriation must be considered the dominant and controlling principle to be applied and to be modified only insofar as required by practical considerations.

## A. THE POSITIONS OF THE RESPECTIVE PARTIES AS TO PRIORITY OF APPROPRIATION.

There can be no question but that the laws of the respective states are closely parallel in the distribution of water internally by priority of appropriation. The Master's report (pp. 11-14) well summarises these laws and demonstrates the fact that Wyoming and Colorado as well as Nebraska are appropriation states. This discussion is unchallenged by any of the parties since no exceptions are taken to that portion of the report. Indeed the only exception taken in connection with this phase of the report is that taken by the United States and by Wyoming (United States Exception XXI, Wyoming Exception XXXIII) to the statement on page 15 as to the Wyoming limitation of one second-foot for each seventy acres.

It is probable that practical considerations prevent the strict application of a priority rule in regard to appropriations in Colorado in their relation to appropriations in Wyoming and Nebraska. The large number of small projects principally for irrigation of hay meadows together with the short irrigation season would seem to make these projects chiefly important in relation to storage in the Pathfinder and Seminoe Reservoirs. For practical purposes, probably it is sufficient to control irrigation from the North Platte and tributaries in Colorado only by confining uses to those being made on existing projects. We disagree with some of the details of the Master's recommendations in respect to Colorado uses, and our exceptions in that connection will be discussed at a later point in this brief (infra, pp. 71-75). In general, however, we agree that the application of

the priority principle in relation to Colorado should be in protecting the existing projects in the lower states against encroachments by future developments in Colorado.

The chief application of the priority principle is sought by Nebraska in the area east and down stream from the outlet of Alcova Reservoir, particularly in the area below the outlet of Guernsey commencing with the Whalen diversion dam serving the three largest units of the North Platte Project. In this area, Wyoming and Nebraska alone are interested as the states involved in this proceeding, and the United States is interested as an appropriator. The United States urged distribution in this area on the principle of priority of appropriation (see Nebraska Exceptions above cited; United States Exception III[c] ). The difference between Nebraska and the United States is that the United States wishes to confine the area in which priority is to be applied to the section commencing with the Whalen Dam and ending with the Tri-State Dam, while Nebraska seeks a larger area for the application of the principle.

On the other hand, Wyoming objects to any application of the principle of priority of appropriation interstate and seeks a "mass allocation of supply" (Wyoming Exception XXVII, par. 4).

In this connection, we believe that Wyoming is inconsistent in the following three respects, which we believe should result in an estoppel of Wyoming to urge any different rule than priority of appropriation. First, by applying priority of appropriation for internal administration of water, Wyoming in effect concedes that it is

an equitable basis for apportionment of water. Second, Wyoming sought and obtained a distribution of the waters of the Laramie River interstate between it and Colorado upon the sole basis of priority of appropriation. Third, Wyoming has taken the position by its pleadings in this case that priority of appropriation is the proper and equitable method of apportionment of water.

1. THE ADOPTION OF THE PRINCIPLE OF PRIORITY OF APPROPRIATION AND ITS APPLICATION INTERNALLY CALLS FOR ITS APPLICATION AGAINST WYOMING.

We believe that counsel for Wyoming are in no position to claim different treatment at the hands of the court than the State of Wyoming itself accords appropriators within the state. It seems well settled that an individual state is not in a position to complain when the same rule is applied against it that is applied internally by itself in disagreements or controveries among its own citizens. Thus, in relation to transmountain diversion, this court rejected Wyoming's claim against Colorado that diversion for use on lands outside the watershed was not permissible on the ground that Wyoming itself permitted such diversion within the state (see *Wyoming* v. *Colorado*, 259 U. S. 419 at pages 466 to 467, 66 L. Ed. 999 at page 1014). See also *New Jersey* v. *New York*, 283 U. S. 336 at page 343, 76 L. Ed. 1104 at page 1106.

2. WYOMING SOUGHT AND OBTAINED A DECISION OF THIS COURT AGAINST COLORADO IN THE DISTRIBUTION OF THE LARAMIE RIVER WATERS ON THE PRINCIPLE OF PRIORITY OF APPROPRIATION.

In the case of *Wyoming* v. *Colorado*, 259 U. S. 419, 66 L. Ed. 999, Wyoming sought to obtain an equitable

apportionment of the waters of the Laramie River on the principle of priority of appropriation, and this court applied that principle (see 259 U. S. 470-471, 66 L. Ed. 1015-1016). The brief filed by Wyoming is summarized in 259 U. S. 419-430, 66 L. Ed. 1004-1005. It is clear from the analysis of that brief that Wyoming's claim against Colorado was based exclusively on priority of appropriation, and that apportionment on that basis was sought and obtained.

3. WYOMING IS ESTOPPED BY THE ASSERTION IN HER PLEADINGS TO QUESTION THE PRINCIPLE OF PRIORITY OF APPROPRIATION INTERSTATE.

In the amended and supplemental answer and cross petition filed by Wyoming herein Wyoming asserts as the proper principle of distribution of waters of the South Platte between Colorado and Nebraska, the principle of priority of appropriation In the twenty-second article of this amended and supplemental answer, Wyoming alleges the South Platte River compact which was entered into between the States of Nebraska and Colorado in 1923 distributing and apportioning the waters of the South Platte between Colorado and Nebraska. It is asserted that this compact violates the principle of priority of appropriation and does not take account of the rights of the prior appropriators on the Platte River, and that the South Platte compact should have required contribution from Colorado to satisfy such prior appropriators on the Platte River in Nebraska. Complaint is then made that Nebraska should not ask for water from the North Platte in Wyoming to satisfy such appropriators where Nebraska had agreed that Colorado was not to be required to observe priorities.

We are not at this point concerned with the disposition made by the Master of that assertion by Wyoming. In fact, the Master in his report (pp. 123-124) eliminates this question, and since no party has taken exception thereto, we assume that that matter is settled. In point of fact, Wyoming introduced no evidence in support of this allegation, but Nebraska devoted considerable attention to the subject, and we believe demonstrated that the South Platte compact does in practical effect bring about a distribution by priority. However, Wyoming has never withdrawn or amended this portion of its answer and cross petition, but on the contrary, is submitting this cause to this court on the theory contained therein. We do not believe that Wyoming should be permitted to assert in its pleadings that the South Platte waters should be divided between Colorado and Nebraska on the basis of priority of appropriation of the respective appropriators in Colorado and Nebraska, and at the same time, deny that basis as the appropriate principle of distribution as between Wyoming and Nebraska.

## B. THE PRINCIPLE OF PRIORITY OF APPROPRIATION INTERSTATE.

We need not dwell extensively upon the principle of priority in the abstract. Briefly, it may be stated to be the principle that he who first appropriates water to beneficial use and invests money and expense, time and labor upon the works to make use of the water is entitled to the flow without diminution by reason of operations of those who come later in time. It may be said to be based upon the ancient equitable maxim "*qui prior est tempore, potior est jure.*" Its social and economic utility is evidenced both by its success in bringing about

the development of large scale irrigation in the western states, and also that it is the only method that has ever been devised by which capital could be invested in irrigation works or other structures for water utilization with assurance that future operations would not be interfered with by subsequent operations of others.

It will be conceded that the law of priority of appropriation is so deeply imbedded in the law of the seventeen western irrigation states, covering more than one-third of the area of the United States that change is almost unthinkable.

1. THE PRINCIPLE OF PRIORITY OF APPROPRIATION AS BETWEEN INDIVIDUAL APPROPRIATORS LYING IN DIFFERENT STATES BUT USING WATER FROM THE SAME STREAM.

Although this suit is between different states, it is fundamentally based upon the rights of the individual appropriators and has for its purpose the protection of those rights. As stated in *Wyoming* v. *Colorado*, 259 U. S. 419 at page 468, 66 L. Ed. 999 at page 1015: "the interests of the state are indissolubly linked with the rights of the appropriators," "their situation and what has been accomplished by them for their respective states can (not) be ignored." Thus it becomes important to discover the relationship between the individual appropriators in the one state, and the other state or its appropriators on an interstate stream. There can be no question but that under such circumstances, the prior appropriator is entitled to the superior or senior right as against both the other state and appropriators lying in that other state. Because of the nature of appropriations and uses of water, the situation usually

arises with the appropriator in the lower state as the aggrieved party. In the following cases, it is held that where the principle of priority of appropriation is applied in both states on an interstate stream, the existence of the state line creates no difference in right and the prior appropriator in the lower state is entitled to the water in preference to the junior appropriator in the upper state.

*Howell* v. *Johnson*, (C. C. Montana 1898) 89 Fed. 556.

*Rickey Land and Cattle Company* v. *Miller and Lux*, (1910) 218 U. S. 258, 54 L. Ed. 1032.

*Bean* v. *Morris* 221 U. S. 485, 55 L. Ed. 821.

*Weiland* v. *Pioneer Irrigation Company*, (1921) 259 U. S. 498, 66 L. Ed. 1027.

*Finney County Water Users Association* v. *Graham Ditch Company*, (D. C. Colo. 1924) 1 Fed. (2d) 650.

*Albion-Idaho Land Company* v. *N. A. F. Irrigation Company*, (C. C. A. 10, 1938) 97 Fed. (2d) 439.

*Brooks* v. *United States*, (C. C. A. 9, 1941) 119 Fed. (2d) 636.

Equally, it is held that as between the appropriator using water in the lower state and the administrative irrigation authorities controlling the water under the authority of the upper state, those upper state authorities must recognize the rights obtained by appropriation in the lower state even to the extent of allowing diversion of the waters from the stream in the upper state for use in the lower state (*Weiland* v. *Pioneer Irrigation Co.*, supra).

This situation is not uncommon in occurrence on interstate streams. In the instant case, as between Nebraska and Wyoming, there are four instances, in each case involving a canal diverting in Wyoming and irrigating land entirely or in part in Nebraska. These are the Mitchell, Interstate, Fort Laramie and French Canals. The acreages irrigated and their location are shown by Table XVII, pages 86 to 87 of the Master's report. They are as follows: The Mitchell 13,633 acres all in Nebraska; Interstate 114,100 acres in all, 98,000 of which is in the Pathfinder Irrigation District in Nebraska, 2,300 acres in the Pathfinder Irrigation District in Wyoming and 13,800 acres in the Lingle and Hill Districts in Wyoming; the Fort Laramie Canal with 103,500 acres in all, 53,500 being in the Gering-Fort Laramie Irrigation District in Nebraska and 50,000 in the Goshen Irrigation District in Wyoming; and finally the French Canal covering 1,676 acres in all, 651 acres lying in Wyoming and 1,025 in Nebraska.

The rule of law is clear as to the relation of the Nebraska lands under such canals and the Wyoming authorities. Wyoming, by the decisions of its own court, has established this right of the appropriator in a lower state upon an interstate canal diverting in Wyoming. This is established in the case of *Willey* v. *Decker*, 11 Wyo. 496, 73 Pac. 210. The same principle was established in *Weiland* v. *Pioneer Irrigation Company*, 259 U. S. 498, 66 L. Ed. 1027, and in *North Side Canal Company* v. *State Board of Equalization*, (C. C. A. 8, 1926) 17 Fed. (2d) 55.

The law, therefore, seems clear that a Nebraska appropriator would have the right to assert his prior ap-

propriation against junior diversions in Wyoming whether he was supplying his land through a canal diverting in Wyoming or one diverting in Nebraska. It is true, of course, that this is not a suit between individual appropriators in the respective states. However, because of the intimate relationship between the individual appropriators in Nebraska and the state on the one hand and the similar relationship between the individual appropriators in Wyoming and that state on the other as demonstrated in the case of *Wyoming* v. *Colorado*, supra, we believe that the principles laid down by the above cited cases have an important bearing upon the decision of this case.

## 2. The Principle of Priority of Appropriation in Interstate Suits.

Interstate suits have largely been concerned with boundaries. There are, however, a large number of such suits dealing with water problems as between the states. These are listed in the Master's report, pages 106 to 109, especially on page 109.

It is to be noted that of these suits only the cases of *Arizona* v. *California*, 283 U. S. 423, and *Arizona* v. *California*, 298 U. S. 558, *Washington* v. *Oregon*, 297 U. S. 517, and *Wyoming* v. *Colorado*, 259 U. S. 419, involved states which recognized the principle of priority of appropriation as the basis for distribution of water internally. The Arizona-California cases, involving as they did the question of distribution of water in the future and water available for future development, did not deal with the question involved herein. In the case of *Washington* v. *Oregon*, it was accepted by all parties and the court that if any decree were to be made, it

would be upon the basis of priority of appropriation of the appropriators in the respective states. This was made clear by the court in its discussion (297 U. S. 517 at 521, 80 L. Ed. 837 at 839).

The controlling precedent in this court is, we believe, the case of *Wyoming* v. *Colorado*, 259 U. S. 419 at 468, 66 L. Ed. 999 at 1015, as follows:

> "We conclude that Colorado's objections to the doctrine of appropriation as a basis of decision are not well taken, and that it furnishes the only basis which is consonant with the principles of right and equity applicable to such a controversy as this is. The cardinal rule of the doctrine is that priority of appropriation gives superiority of right. Each of these states applies and enforces this rule in her own territory, and it is the one to which intending appropriators naturally would turn for guidance. The principle on which it proceeds is not less applicable to interstate streams and controveries than to others. Both states pronounce the rule just and reasonable as applied to the natural conditions in that region; and to prevent any departure from it, the people of both incorporated it into their constitutions. It originated in the customs and usages of the people before either state came into existence, and the courts of both hold that their constitutional provisions are to be taken as recognizing the prior usage rather than as creating a new rule. These considerations persuade us that its application to such a controversy as is here presented cannot be other than eminently just and equitable to all concerned.
>
> "In suits between appropriators from the same stream, but in different states recognizing the doctrine of appropriation, the question whether rights

under such appropriations should be judged by the rule of priority has been considered by several courts, state and Federal, and has been uniformly answered in the affirmative. Conant v. Deep Creek & C. Valley Irrig. Co., 23 Utah 627, 631, 90 Am. St. Rep. 721, 66 Pac. 188; Willey v. Decker, 11 Wyo. 496, 534, 535, 100 Am. St. Rep. 939, 73 Pac. 210; Taylor v. Hulett, 15 Idaho 265, 271, 19 L. R. A. (N. S.) 535, 97 Pac. 37; Howell v. Johnson, 89 Fed. 556; Hoge v. Eaton, 135 Fed. 411; Morris v. Bean, 146 Fed. 423; Bean v. Morris, 86 C. C. A. 519, 159 Fed. 651. One of the cases came to this court and the judgment below was affirmed. Bean v. Morris, 221 U. S. 485, 55 L. Ed. 821, 31 Sup. Ct. Rep. 703. These decisions, although given in suits between individuals, tend strongly to support our conclusion, for they show that by common usage, as also by judicial pronouncement, the rule of priority is regarded in such states as having the same application to a stream flowing from one of them to another that it has to streams wholly within one of them."

The cases of *Kansas* v. *Colorado*, 206 U. S. 46, and *Colorado* v. *Kansas*, 320 U. S. 383, do no militate against Nebraska's contention. The controversy between Kansas and Colorado, in its most recent appearance before this court, decided December 6, 1943, and appearing in 320 U. S. 383, clearly shows that Kansas is a riparian rights state while Colorado is an appropriation state. This court was unable to find any common ground of internal distribution of water between the states and, therefore, was unable to apply the principle of *Wyoming* v. *Colorado*, supra.

While the Master recognizes to some extent the principle of priority of appropriation, we believe that he

gives insufficient weight to it as the basic and controlling principle in distribution of water as between the states.

IV.

**The Decree Herein Should Provide for a Distribution of Water Between the States of Nebraska and Wyoming Below Whalen on the Basis of Priority of Appropriation of the Individual Appropriators.**

In connection with this subject, reference is made to Items 1, 21, 23, 26, 32 and 33 of Nebraska's exceptions.

Based upon the foregoing argument, it is Nebraska's contention that the only just and equitable distribution of water in the section beginning at Whalen is on the basis of the priorities.

In addition to the other reasons above pointed out, this rule is peculiarly applicable because of the 150,000 acres of Nebraska land which is watered from canals diverting at Whalen. To be exact, 53,500 acres through the Fort Laramie Canal (Master's Report, p. 59) and 95,700 acres through the Interstate Canal (Master's Report, p. 87). Under the decision in *Weiland* v. *Pioneer Irrigation Company*, supra, and the other decisions above cited, unquestionably the owners of these Nebraska lands or their representatives, the irrigation districts involved, have the right to require the Wyoming irrigation authorities to recognize their priorities. Similarly with the Mitchell Canal which diverts in Wyoming and the Nebraska lands under the French Canal which likewise diverts in Wyoming.

The other Nebraska irrigation projects which have rights in the same region are inextricably entwined with

the rights of the canals so diverting. The rights of the Mitchell Irrigation District can be taken as an illustration. The diversion point for the Mitchell is in the State of Wyoming, a very short distance above the state line. All the lands which it waters are located in the State of Nebraska. It has a Wyoming appropriation as of June 20, 1890, and on the records of the State of Wyoming it is so recognized. (Its Nebraska appropriation carries the same priority date.)

Until 1935, Nebraska irrigation authorities were unable to control its diversions of water, and in order to protect senior Nebraska appropriators (for example the Tri-State) it became necessary for the State of Nebraska to institute litigation. This resulted in the decision of the Nebraska Supreme Court in the case of *State, ex rel. Sorensen* v. *Mitchell Irrigation District*, 129 Neb. 586, 262 N. W. 543, certiorari denied by this court 297 U. S. 723, 80 L. Ed. 1007. After Nebraska thus obtained control of the headgate of the Mitchell Canal, it was compelled to observe the priorities of senior Nebraska canals including the Tri-State whose priority was September 16, 1887. The Wyoming authorities subsequently refused to regulate Wyoming canals upstream which were junior to the Mitchell for the reason that unless sufficient water were allowed to pass Mitchell's headgates to satisfy Tri-State's priority, the water would not be given to Mitchell but instead would be given to Tri-State. Mitchell Irrigation District started suit, and this was decided by the Wyoming Supreme Court under the title *Mitchell Irrigation District* v. *Whiting*, 59 Wyo. —, 136 Pac. (2d) 502, certiorari denied by this court No. 778, October Term 1943, April 24, 1944, 88 L. Ed. 840, Adv. sheets. This decision

was adverse to Mitchell Irrigation District for the reason, as given by the Wyoming Supreme Court, that the closing of juniors in Wyoming would not benefit Mitchell since Nebraska would not allow Mitchell to have the water unless it was sufficient also to supply Tri-State.

Thus we have a situation wherein Mitchell, by reason of operation of priorities within the State of Nebraska, is not allowed the benefit of its Wyoming appropriation to which benefit it is entitled under the decision of this court in *Weiland* v. *Pioneer Irrigation Company*, supra. In effect, Wyoming says that she will regulate her upstream juniors for the benefit of Mitchell but only if the water actually would go to Mitchell. She further says that she cannot regulate her upstream juniors for the benefit of Tri-State which is even senior to Mitchell and, therefore, must be senior to these Wyoming juniors. Nebraska, on the other hand, says that under her laws of priority of appropriation (which in this respect are identical with the Wyoming laws of priority of appropriation) she cannot allow any water under her jurisdiction to be diverted by Mitchell if it is needed by Tri-State under its priority. Mitchell is caught between the upper and nether millstones purely by operation of the laws of the two respective states and is apparently without remedy.

Obviously, the solution is to require the junior appropriations in Wyoming to respect not only Mitchell's priority but also that of Tri-State and the Nebraska canals in this section of the river. It should be noted that the Wyoming canals herein referred to as juniors all lie below Whalen Dam, and we do not seek in this suit to regulate Wyoming private canals above Whalen

except to ask that Wyoming should not place further burdens on the river by further developments.

Distribution of water both above and below the state line on the basis of priority of appropriation is clearly the proper solution to the problem. It is to be noted that the only objection to such a solution on the part of any of the parties to this case comes from the State of Wyoming. We understand from the exceptions of the United States (Exception No. III [c] ) that the United States advocates the distribution of water in the section between Whalen and Tri-State Dam pursuant to a priority schedule. We do not understand that Colorado objects. As above pointed out (supra, pp. 32-33), we believe that Wyoming is estopped by its position in the case of *Wyoming* v. *Colorado*, 259 U. S. 419, 66 L. Ed. 999, to question the principle of priority in the distribution of water.

In this connection, it should be noted that Table XVII, pages 86 to 87 of the Master's report, contains all the information that is necessary for the establishment of a priority schedule to and including the Tri-State Dam. As will be shown in the next section of this brief, we think that the priority schedule should include the area down to Bridgeport, and on that question the Master's report, pages 254 to 267, contains the information necessary for a priority schedule expanded to include the area from Tri-State Dam to Bridgeport. In that section of the brief, we have expanded the Master's Table XVII to include that area based upon the information given in the Master's report (Table II, infra, pp. 49-51).

## THE MASTER'S OBJECTIONS TO A PRIORITY SCHEDULE.

In the Master's report, pages 113 to 116 and pages 148 to 150, he discusses the interstate priority schedule and gives his opinion against such a schedule. His objections are: first, the practical difficulty of extending a priority schedule from Cameron Pass to Kearney; second, the priority schedule would deprive each state of intrastate administration of her share of the water; third, the limitation on each individual appropriator should not be made in the absence as parties of the individual appropriators, since that might deny due process of law and, fourth, it would burden the decree with unnecessary administrative detail. As to the first of these objections, he points out that the physical difficulties would not exist if the priority schedule were imposed in the section between Whalen and Tri-State Dam (Master's Report, p. 149). The section down to Bridgeport, involving as it would only sixty additional miles, would certainly not alter that conclusion.

As to the second objection, namely, the freedom of the states in their intrastate administration of the water, we have only this to say: It is obvious that giving complete freedom to Wyoming for intrastate administration deprives at least one canal, the Mitchell, of the right guaranteed to that canal under Wyoming law and the decisions of this court. Wyoming, by her own Supreme Court decision, acknowledges that her intrastate administration cannot give to Mitchell, a Wyoming appropriator whose appropriation is recognized in Wyoming by the issuance of certificates of appropriation, the water to which it is entitled under its Wyoming appropriation.

The mere technical intrastate freedom cannot be so operated as to deprive American citizens of their vested rights which are of a type that has been recognized and protected by previous decisions of this court such as *Weiland* v. *Pioneer Canal Company*.

We believe the Master's third objection, namely, that a decision as to priorities in the absence of the irrigation districts themselves, might be a denial of due process of law, is likewise untenable.

In the first place this court has already said in its decision denying Wyoming's motion to dismiss this very case (*Nebraska* v. *Wyoming*, 295 U. S. 40, 79 L. Ed. 1289) that the state "stands in judgment" for its appropriators. This is further emphasized by the decision of this court in *Wyoming* v. *Colorado*, 286 U. S. 494 at pages 508 to 509, 76 L. Ed. 1245 at page 1252, as follows:

> "But it is said that water claims other than the tunnel appropriation could not be, and were not, affected by the decree, because the claimants were not parties to the suit or represented therein. In this the nature of the suit is misconceived. It was one between States, each acting as a quasisovereign and representative of the interests and rights of her people in a controversy with the other. Counsel for Colorado insisted in their brief in that suit that the controversy was 'not between private parties' but 'between the two sovereignties of Wyoming and Colorado;' and this Court in its opinion assented to that view, but observed that the controversy was one of immediate and deep concern to both States and that the interests of each were indissolubly linked with those of her appropriators. 259 U. S. 468, 66 L. ed. 1015, 42 S. Ct. 552. Decisions in other cases also warrant the conclusion that the

water claimants in Colorado, and those in Wyoming, were represented by their respective States and are bound by the decree."

Moreover, under this heading we might point out that in each determination as to priority of appropriation which has in the past been made in each state, other appropriators in the same state were parties and in many cases contested the priority date or amount of appropriation. In effect, this gave representation to other appropriators who might be affected by the determination of the priority, and thus the appropriators in the other state could be said to have been parties by representation. It is to be noted that the Master in his report in each instance follows the state records as to the appropriative right and the priority date.

The final objection of the Master as to administrative detail is, we believe, not an insuperable objection. Where the equities of a case clearly require it, courts do not hesitate to embark on the administration of the rights of respective parties. It is not unusual in partnership controversies, where the respective partners are unable to agree, for a court to appoint a receiver to administer partnership affairs. Railroad receiverships looking toward the rehabilitation of the business and not toward its liquidation are likewise common in the federal courts. Of course, we concede that these are not exact analogies, although it is perhaps not unfair to view the river as a kind of involved joint ownership property in which the two joint owners are unable to agree upon the division of the benefits.

Moreover, there is no great administrative detail necessary for the court to carry out. Each state has its own

water administrative authority fully equipped and experienced in the distribution of water and in the operation of the stream according to priorities. It is only necessary for this court to control the already existing organizations. A schedule of priorities can be attached to the decree and direction given to the respective state water administrative authorities that they shall administer the water according to that schedule so far as the other state is concerned. Such a decree would not need to direct how the water within the state, which is not needed for the lower state, should be administered as among the respective priorities within that state.

We submit that an administration according to a priority schedule, being favored by two out of the three parties who are interested in the section of the river below Whalen and being a just and equitable method of dividing the water based upon the precedents in this court, should be adopted and put into effect.

## V.

**Protection Should be Afforded to Nebraska Appropriators in Accordance with Their Priorities East of the Tri-State Dam and Down to Bridgeport, Nebraska.**

In connection with this subject we refer the court to Items 2, 14 and 18 of Nebraska's exceptions.

With reference to this section, the Master's conclusion and recommendation is that the lands in this section have no equitable claim upon the waters originating above the state line, and that they should be limited to a dependence upon local supplies without asking that Wyoming appropriators, even though junior, should be required to yield in their favor on the direct flow supply.

This is found in conclusion No. 5, on page 9 of the Master's report, and likewise in the discussion, pages 92 to 93. As measured along the river, the distance from the state line to Bridgeport is approximately sixty miles (Table I, p. 27 of the Master's report). There are in that area fourteen canals having a total requirement, according to Table XVIII, page 93 of the Master's report, of 132,420 acre-feet annually, of which twelve make demands on the river of a total of 102,810 acre-feet. Since the Master's allotment of water to them is 2.6 acre-feet per acre (see p. 57 of the report), the total acreage would be slightly in excess of 50,000 acres of which some 40,000 acres have demands on the river. This may be contrasted with the nine Wyoming private canals referred to in Table IV, page 77 of the Master's report which, according to Table VI, page 74, have a seasonal requirement of 40,450 acre-feet or 15,149 acres. Of these canals in the area between Tri-State Dam and Bridgeport two, namely, the Central and Chimney Rock, have Warren Act contracts (see p. 35 of the Master's report).

From the Master's report a priority schedule can be prepared parallel to Table XVII, pages 86 to 87, which priority schedule would include the canals between Tri-State Dam and Bridgeport. Using Table XVII and interpolating the data contained in the report, pages 254 to 267, we have the following table of priority:

# TABLE II

## NORTH PLATTE RIVER, WHALEN-BRIDGEPORT SECTION

Priorities in relation to State Lines
Acreages and Requirements in Second-feet and Acre-feet
Prepared from Tables XVII and XVIII (above Bridgeport)

Master's Report and from data pages 257 to 267.

| | Canal | Priority | Acres | Second-feet | Acre-feet |
|---|---|---|---|---|---|
| | Grattan | 11- 1-82 | 614 | 9 | 1,639 |
| | North Platte | 9-22-83 | 3,153 | 45 | 8,418 |
| 1—Wyo. | Rock Ranch | Spring-84 | 2,250 | 32 | 5,908 |
| | Pratt Ferris | 5-22-86 | 1,200 | 17 | 3,204 |
| | | | 7,217 | 103 | 19,169 |
| | Tri-State | 9-16-87 | 51,000 | 729 | 178,500 |
| | Minatare | 1-14-88 | 6,900 | 99 | 17,940 |
| | Winters Creek | 11-18-88 | 1,300 | 19 | *3,380 |
| | Enterprise | 3-28-89 | 2,210 | 32 | **5,750 |
| | Castle Rock | 4-18-89 | 6,000 | 86 | 15,600 |
| 2—Neb. | Logan | 10-17-89 | 178 | 3 | 460 |
| | Belmont | 12-19-89 | 7,827 | 112 | ***22,600 |
| | Mitchell | 6-20-90 | 13,633 | 195 | 35,000 |
| | Central | 6-23-90 | 1,600 | 23 | 4,160 |
| | Chimney Rock | 12- 3-90 | 5,000 | 71 | 12,500 |
| | Empire | 6-25-91 | 1,430 | 20 | 2,288 |
| | | | 97,078 | 1,389 | 298,178 |
| | Burbank | 11- 6-91 | 292 | 5 | 833 |
| 3—Wyo. | Torrington | 11-28-91 | 2,061 | 29 | 5,503 |
| | Lucerne | 2-21-93 | 4,221 | 60 | 11,270 |
| | | | 6,574 | 94 | 17,606 |
| | Ramshorn | 3-20-93 | 994 | 14 | 3,000 |
| | Short Line | 5- 1-93 | 2,700 | 39 | 4,500 |
| 4—Neb. | Nine Mile | 12- 6-93 | 5,000 | 71 | 13,000 |
| | Steamboat | 10-22-95 | 200 | 3 | 520 |
| | Gering | 3-15-97 | 13,500 | 193 | 36,000 |
| | | | 22,394 | 320 | 57,020 |

TABLE II—Continued

| | Canal | Priority | Acres | Second-feet | Acre-feet |
|---|---|---|---|---|---|
| | Burbank | 3-12-98 | 20 | 1 | 53 |
| 5—Wyo. | Narrows | 11-13-99 | 110 | 2 | 334 |
| | Lingle-Hill (via interstate) | 9- 6-01 | 11,500 | 164 | 34,299 |
| | | | 11,630 | 167 | 34,686 |
| 6—Neb. | Tri-State | 4-14-02 | 1,300 | 19 | 4,550 |
| | Wright | 4-23-02 | 110 | 2 | 303 |
| | Grattan | 1-27 04 | 70 | 1 | 187 |
| 7—Wyo. | Murphy | 4- 2-04 | 100 | 1 | 275 |
| | Grattan | 12- 2-04 | 639 | 9 | 1,706 |
| | | | 919 | 13 | 2,471 |
| | Lingle-Hill (via interstate) | 12- 6-04 | 2,300 | 33 | 11,655 |
| 8—Wyo. | Interstate Wyo. lands | 12- 6-04 | 2,300 | 33 | 9,844 |
| | Goshen Irrigation District (via Ft. Laramie) | 12- 6-04 | 50,000 | 714 | 137,500 |
| | | | 54,600 | 780 | 158,999 |
| | Pathfinder Irrigation District (via Interstate) Neb. lands | 12- 6-04 | a- 84,950 | 1,213 | 363,586 |
| 9—Neb. | Gering-Ft. Laramie Irrigation District (via Ft. Laramie) | 12- 6-04 | 53,500 | 764 | 147,100 |
| | Northport (via Tri-State) | 12- 6-04 | b- 4,548 | 65 | 19,100 |
| | Empire | 7-20-07 | 70 | 1 | 112 |
| | | | 143,068 | 2,043 | 529,898 |
| | Rock Ranch | 1- 3-10 | 822 | 12 | 2,195 |
| 10—Wyo. | French | 2-20-11 | 504 | 7 | 1,346 |
| | | | 1,326 | 19 | 3,541 |

| | | | | | |
|---|---|---|---|---|---|
| 11—Neb. | French | 12-21-11 | 770 | 11 | 2,056 |
| 12—Wyo. | French | 7-14-15 | 147 | 2 | 392 |
| 13—Neb. | French | 9-11-15 | 213 | 3 | 569 |
| | French | 3-20-20 | 42 | 1 | 102 |
| | | | 255 | 4 | 671 |



a- 98,000 acres minus 10,748 acres supplied by winter diversions to inland reservoirs minus 2,300 acres Wyoming lands served by Interstate = 84,950.

b- 13,000 acres minus 8,452 acres supplied by drain interceptions = 4,548 acres supplied from river.

* Requirement 11,700 Acre-feet minus interceptions 8,320 Acre-feet = 3,380 Acre-feet River demand; 3,380 Acre-feet divided by 2.6 Acre-feet per acre = 1,300 acres: 1,300 acres divided by 70 acres = 19 second-feet. See page 258.

** Requirement 14,500 Acre-feet minus interceptions 8,750 Acre-feet = 5,750 Acre-feet River demand: 5,750 Acre-feet divided by 2.6 Acre-feet per acre = 2,210 acres: 2,210 acres divided by 70 acres = 32 second-feet. See pages 257, 258.

*** Requirement 24,000 Acre-feet minus interceptions 1,400 Acre-feet = 22,600 Acre-feet River demand: 22,600 Acre-feet divided by 2.89 Acre-feet = 7,827 acres: 7,827 Acres divided by 70 acres = 112 second-feet. See pages 265, 266.

NOTE: Alliance Canal Requirement 10,100 Acre-feet supplied by interceptions and hence no river demand; therefore, excluded from this table. See page 93.

Schermerhorn Canal Requirement 1,040 Acre-feet supplied by interceptions and hence no river demand; therefore, excluded from this table. See page 93.

From this it will be noted that nine out of these twelve canals between Tri-State Dam and Bridgeport are included in the second block or group of appropriations and are senior to all Wyoming appropriations except the first 103 second-feet for the oldest appropriations of the Grattan, Rock Ranch, Platte and Ferris. The other three fall within the fourth group of appropriations, and only approximately two hundred second-feet of Wyoming appropriations are senior to these Nebraska appropriations.

It will be conceded that the area below Tri-State Dam and above Bridgeport, which is watered by these twelve canals, is almost identical with the Wyoming lands above the state line and below Whalen, and, likewise, it is almost identical with the Nebraska lands watered under the Interstate, Fort Laramie and Tri-State Canals. Reference to the maps contained in the Master's report,

following pages 16 and 54, respectively, shows that the Northside Canals in general lie between the river and the Interstate and Tri-State and Northport Canals, and on the south side between the river and the Fort Laramie Canal. Indeed, the Northport extends east of the Tri-State Canal and the Interstate Canal; both extend east almost to a point north of Bridgeport, and the Fort Laramie Canal, although it does not extend so far east, does extend well down toward Bridgeport and waters lands very similar to those which are watered by the south side canals just referred to.

The most natural division of the river, considered from the point of view of the type of agriculture engaged in, the economic interests, and the other common interests of the people inhabiting the area, is to include the area from Whalen to Bridgeport as one combined section. The discussion in the Master's report, pages 92 to 95 and 254 to 257, clearly indicates the parallelism between the area served by the twelve canals in question and the area immediately north of that area served by the Tri-State, Northport and the Interstate and the area immediately south served by the Fort Laramie and the area immediately west in Wyoming.

The only question is that of adequacy of supply and whether the Master's conclusion is justified to the effect that return flows and local supplies satisfactorily supply the need.

The following table for the three dry years of 1934, 1936 and 1940 shows, in relation to need as determined by the Master, how certain of these canals fared in the past:

## TABLE III

COMPARISON OF ACTUAL SUPPLY OF CERTAIN CANALS LYING BETWEEN TRI-STATE DAM AND BRIDGEPORT IN RELATION TO NEED AS DETERMINED BY THE MASTER FOR THE YEARS 1934, 1936 AND 1940.

(Data as to actual supply from Nebraska Biennial Reports of which the court may take judicial notice by stipulation of the parties—see footnote Master's Report, page 24.)

| Canal | 50% of Requirement in acre-feet according to Master's Report (Table XVIII p. 93) | 1934 July-August Diversions | Per Cent | 1936 July-August Diversions | Per Cent | 1940 July-August Diversions | Per Cent |
|---|---|---|---|---|---|---|---|
| Central | 2080 | 2144 | 103 | 1985 | 95 | 1626 | 78 |
| Chimney Rock | 6250 | 3590 | 57 | 3770 | 60 | 2949 | 47 |
| Short Line | 2250 | 934 | 41 | 333 | 14 | 632 | 28 |
| Nine Mile | 6500 | 1930 | 29 | 1619 | 24 | 157 | 2 |

NOTE: July and August taken as the two critical water supply months for agriculture in this region. For purpose of comparisor Master's allocation of water for the season as shown on Table XVIII, p. 93, is used, but 50% is taken as the proper supply for July and August, in accordance with Table XVI, p. 83.

It is interesting to contrast these supplies in total acre-feet values with those enjoyed for the same years by the nine Wyoming canals as shown on Table IX, page 77 of the Master's report, as follows:

## TABLE IV

COMPARISON OF ACTUAL SUPPLY OF ABOVE NAMED CANALS IN RELATION TO NEED AS COMPARED WITH THE SUPPLY FOR THE SAME YEARS OF THE NINE WYOMING CANALS IN RELATION TO THEIR NEEDS.

| Canal | Requirement from Master's Report, Table XVIII, p. 93 | Total 1934 | Per Cent | Total 1936 | Per Cent | Total 1940 | Per Cent |
|---|---|---|---|---|---|---|---|
| Chimney Rock | 12,500 | 11,832 | 94 | 13,369 | 107 | 8,777 | 70 |
| Short Line | 4,500 | 4,190 | 93 | 2,137 | 48 | 3,582 | 79 |
| Nine Mile | 13,000 | 5,737 | 44 | 11,452 | 88 | 6,103 | 47 |
| Nine Wyoming Private Canals (from Table IX, p. 77) | 45,737 | 51,600 | 113 | 65,726 | 144 | 63,100 | 138 |

The above figures speak for themselves. It is obvious that these canals have received grossly unfavorable treatment in comparison with the Wyoming canals in question. This is particularly true in view of the large amount of excess water which the Wyoming canals diverted in excess of their needs. A reference to Table II (supra, pp. 49-51), will show where they fit in in relation to each other.

Moreover, as above explained (supra, pp. 40-43) the canals in this region are so interrelated that it is impossible to single out separate canals for different treatment. For example, Mitchell is junior to six of the twelve canals which lie between Tri-State Dam and Bridgeport, namely, Minatare, Winters Creek, Enterprise, Castle Rock, Logan and Belmont. Since in addition it is junior to Tri-State, water under the jurisdiction of Nebraska cannot be supplied to Mitchell until all of these canals are properly supplied. Of course, when the local supply is adequate, the lower canals would make no demands upon the supply that might otherwise go to Mitchell. It cannot be certain, however, that the supply for the lower canals will always be adequate without calling upon upstream water. If it should be inadequate, then water made available by Wyoming for Mitchell would, under Nebraska law, be required for seniors below Mitchell.

An administration by priority schedule would automatically take care of the situation so that when the local supply was sufficient, the upstream water would not be called upon. It is only in time of need and in time of shortage that priority administration would need to be invoked, and those are the precise times when distribution becomes critical.

## VI.

### The Recommended Apportionment of Water in the Whalen to Tri-State Dam Area is Erroneous.

In view of the discussion in the Master's report, pages 106 to 113 and pages 148 to 158, it must be assumed that the apportionment recommended by the Master in the Whalen to Tri-State Dam area is intended to approximate distribution by priorities and to eliminate the objections of the Master above referred to, which he raises to the strict priority schedule. He is attempting, by his proposal of a twenty-five per cent - seventy-five per cent allotment of water to give effect as near as may be to the respective rights of the states based upon the priorities of their appropriators and to approximate the flexibility which the priority system alone has. Admittedly any mass allocation of water in terms of flat numbers of acre-feet per year will not have the flexibility required on a stream such as the North Platte where the volume of flow varies so greatly from year to year. The attempt to divide upon a percentage basis takes one step toward the necessary flexibility, but it has the great defect of failing to recognize how the flow would apply at varying stages to the priorities in the area, and thus would miss the whole point of the priorities. Nebraska's objections to the Master's proposal fall under four heads: (a) In practical application during the critical months, it would unduly favor Wyoming and give water to Wyoming juniors when needed for Nebraska seniors; (b) A distribution such as that discussed on pages 153 to 157 and 159 together with Table XIX, page 154, would more nearly fit the needs of the case; (c) No sufficient protection is given to Nebraska lands in the North Platte Project against the junior Kendrick Project; (d) There

is an inadequate allowance of water to the Nebraska lands.

A.

IN PRACTICAL EFFECT THE TWENTY-FIVE - SEVENTY-FIVE PER CENT RATIO WOULD WORK HARDSHIP TO NEBRASKA.

In this connection we refer the court to Items 5, 12, 24, 26, 27 and 32 of Nebraska's exceptions.

A reference to the analysis of Table XVII, page 86, and Table XIX, page 154, discloses the fact that upon a priority basis Wyoming would claim the first 103 second-feet, Nebraska the next 924 second-feet, Wyoming the next 94 second-feet, and Nebraska the next 207 second-feet. A priority basis, therefore, would only coincide with the percentage basis when the supply available was 400 second-feet or when it was 1500 second-feet. If the supply were less than 400 second-feet, a priority basis would give Nebraska less than seventy-five per cent. For example, if the supply were only 100 second-feet, Wyoming would be entitled to all by priority, but under the Master's recommendation would get only one-fourth or twenty-five second-feet. If the supply were 200 second-feet, priority basis would give Wyoming 103 or slightly over one-half, but the Master's recommendation would give only fifty second-feet.

On the other hand if the supply were 800 second-feet, a priority basis would give Wyoming 103 second-feet and Nebraska the remaining 697 second-feet. The Master's recommendation, however, would give Wyoming twenty-five per cent or 200 second-feet and Nebraska only 600 second-feet. As shown by Table XVII, on page

86, with the supply of 800 second-feet Wyoming's 200 second-feet would not only supply her 103 second-feet of senior appropriations but also her 94 second-feet of appropriations junior to Tri-State and Mitchell. All of the 600 second-feet which Nebraska would get out of the 800 second-feet would be supplied to Tri-State and would not satisfy Tri-State's needs. Mitchell, with its Wyoming appropriation senior to the 94 second-feet of the second group of Wyoming appropriators, would be without water, yet the junior canals making the demand for that 94 second-feet would be supplied ahead of Mitchell.

Similar violations of priorities would exist all along the line up to approximately 1500 second-feet of supply. The question, therefore, naturally arises as to what could be expected to happen in relation to the supply.

Fortunately in the record we have analysis which show what can be expected in this type of years. Nebraska exhibits cover for the years 1932, 1934 and 1936 the natural flow supply that is available in the Whalen to Tri-State Dam area when taken into conjunction with certain Wyoming exhibits which show the return flow. Tables V, VI and VII, which follow, show that supply daily for the irrigation seasons of 1932, 1934 and 1936.

# TABLE V

## 1932

## North Platte River Direct Flow Whalen to Tri-State Dam

Sum of 1—Direct Flow N—417, Column 17
2—Laramie River N—11
3—Return Flow W—88, Sheet 1
Rawhide Cr., Cherry Cr., Katzer Drain
Invisible Inflow (Apparent Net Channel Accretion)

Second-feet

| 1932 | May | June | July | Aug. | Sep. |
|---|---|---|---|---|---|
| 1 | 1367 | 4460 | 5725 | 377 | 542 |
| 2 | 1251 | 4466 | 5674 | 456 | 869 |
| 3 | 1110 | 4514 | 5920 | 322 | 897 |
| 4 | 1266 | 4497 | 6072 | 386 | 834 |
| 5 | 1454 | 4390 | 6068 | 93 | 906 |
| 6 | 1344 | 4511 | 5791 | 249 | 818 |
| 7 | 1259 | 4881 | 5679 | 469 | 675 |
| 8 | 1300 | 5159 | 4729 | 478 | 864 |
| 9 | 1327 | 5157 | 4484 | 370 | 900 |
| 10 | 1252 | 5105 | 4051 | 302 | 779 |
| 11 | 1271 | 5503 | 3337 | 125 | 438 |
| 12 | 1271 | 5535 | 3024 | 361 | 834 |
| 13 | 1353 | 5648 | 2580 | 347 | 794 |
| 14 | 1565 | 5556 | 2731 | 345 | 759 |
| 15 | 2059 | 5708 | 2157 | 366 | 657 |
| 16 | 2138 | 5578 | 1955 | 292 | 588 |
| 17 | 2122 | 5023 | 1913 | 340 | 603 |
| 18 | 2068 | 4933 | 2243 | 354 | 693 |
| 19 | 1693 | 4971 | 2332 | 218 | 818 |
| 20 | 1689 | 4695 | 1974 | 380 | 705 |
| 21 | 1471 | 4656 | 1869 | 244 | 838 |
| 22 | 1678 | 4617 | 1782 | 254 | 817 |
| 23 | 1407 | 4696 | 1754 | 250 | 689 |
| 24 | 1398 | 4809 | 1762 | 241 | 887 |
| 25 | 1641 | 5035 | 1800 | 220 | 864 |

| 1932 | May | June | July | Aug. | Sep. |
|---|---|---|---|---|---|
| | | Second-feet | | | |
| 26 | 1813 | 5321 | 1468 | 215 | 790 |
| 27 | 2666 | 5410 | 1739 | 335 | 943 |
| 28 | 3766 | 5544 | 1311 | 312 | 870 |
| 29 | 4531 | 5824 | 1658 | 268 | 727 |
| 30 | 4543 | 5547 | 1586 | 235 | 862 |
| 31 | 4543 | | 1230 | 211 | |

NOTE—Invisible Inflow:—Monthly Acre-feet values converted into mean daily flow in second-feet. Same treatment of Cherry Creek monthly values.
Daily flows of Rawhide Creek and Katzer Drain, see Water Supply Paper 731, U. S. G. S. pages 218, 219.

## TABLE VI

## 1934

## North Platte River Direct Flow Whalen to Tri-State Dam

Sum of 1—Direct Flow N—226, Column 17
2—Laramie River N—302
3—Return Flow W—90, Sheet 1
Rawhide Cr., Cherry Cr., Katzer Drain
Invisible Inflow (Apparent Net Channel Accretion)

| 1934 | May | June | July | Aug. | Sep. |
|---|---|---|---|---|---|
| | | Second-feet | | | |
| 1 | 287 | 1001 | 473 | 403 | 542 |
| 2 | 332 | 1126 | 447 | 285 | 503 |
| 3 | 436 | 810 | 455 | 285 | 550 |
| 4 | 663 | 1859 | 458 | 286 | 563 |
| 5 | 505 | 1436 | 568 | 294 | 528 |
| 6 | 461 | 1028 | 459 | 293 | 535 |
| 7 | 322 | 293 | 423 | 415 | 515 |
| 8 | 383 | 1676 | 484 | 292 | 521 |
| 9 | 382 | 1531 | 673 | 424 | 508 |
| 10 | 321 | 1246 | 564 | 532 | 493 |
| 11 | 317 | 703 | 147 | 607 | 516 |
| 12 | 348 | 1018 | 145 | 508 | 533 |
| 13 | 299 | 1293 | 142 | 436 | 596 |

| 1934 | May | June | July | Aug. | Sep. |
|---|---|---|---|---|---|
| | Second-feet | | | | |
| 14 | 274 | 1099 | 142 | 529 | 637 |
| 15 | 306 | 1086 | 142 | 604 | 554 |
| 16 | 379 | 1186 | 141 | 666 | 506 |
| 17 | 635 | 945 | 139 | 829 | 488 |
| 18 | 1064 | 1001 | 139 | 751 | 489 |
| 19 | 927 | 894 | 140 | 624 | 464 |
| 20 | 862 | 866 | 139 | 663 | 456 |
| 21 | 1078 | 797 | 730 | 627 | 430 |
| 22 | 1018 | 859 | 490 | 921 | 393 |
| 23 | 986 | 830 | 293 | 869 | 452 |
| 24 | 690 | 715 | 150 | 722 | 451 |
| 25 | 894 | 671 | 180 | 579 | 430 |
| 26 | 761 | 777 | 247 | 601 | 435 |
| 27 | 1263 | 693 | 1644 | 632 | 416 |
| 28 | 601 | 654 | 1338 | 735 | 423 |
| 29 | 741 | 645 | 436 | 755 | 429 |
| 30 | 885 | 592 | 731 | 598 | 393 |
| 31 | 764 | | 235 | 525 | |

NOTE—Invisible Inflow:—Monthly Acre-feet values converted into mean daily flow in second-feet. Same treatment of Cherry Creek monthly values.
Daily flows of Rawhide Creek and Katzer Drain, see Water Supply Paper 761, U. S. G. S. pages 203, 204.

## TABLE VII

### 1936

### North Platte River Direct Flow Whalen to Tri-State Dam

Sum of 1—Direct Flow N—306, Column 17
2—Laramie River N—302
3—Return Flow W—92, Sheet 1
Rawhide Cr., Cherry Cr., Katzer Drain
Invisible Inflow (Apparent Net Channel Accretion)

| 1936 | May | June | July | Aug. | Sep. |
|---|---|---|---|---|---|
| | Second-feet | | | | |
| 1 | 1088 | 5089 | 1886 | 773 | 619 |
| 2 | 1104 | 5008 | 1855 | 711 | 589 |

Second-feet

| 1936 | May | June | July | Aug. | Sep. |
|---|---|---|---|---|---|
| 3 | 1139 | 4693 | 1215 | 1028 | 674 |
| 4 | 1162 | 4611 | 1534 | 1162 | 917 |
| 5 | 1330 | 4225 | 1615 | 1167 | 872 |
| 6 | 1120 | 3767 | 1267 | 1136 | 844 |
| 7 | 1053 | 2347 | 1196 | 1906 | 844 |
| 8 | 1065 | 1955 | 1062 | 2349 | 959 |
| 9 | 1138 | 2238 | 812 | 2125 | 978 |
| 10 | 1941 | 1647 | 946 | 1728 | 1029 |
| 11 | 2696 | 1445 | 783 | 1586 | 1062 |
| 12 | 3028 | 1375 | 692 | 1511 | 1092 |
| 13 | 2795 | 1332 | 899 | 1404 | 1018 |
| 14 | 2898 | 1127 | 1152 | 1714 | 856 |
| 15 | 3119 | 1023 | 978 | 1163 | 780 |
| 16 | 3723 | 894 | 1001 | 931 | 858 |
| 17 | 2772 | 1006 | 1911 | 953 | 830 |
| 18 | 1495 | 1012 | 1879 | 884 | 823 |
| 19 | 4120 | 1026 | 1453 | 780 | 817 |
| 20 | 4843 | 1159 | 1489 | 873 | 792 |
| 21 | 5178 | 2626 | 1219 | 730 | 757 |
| 22 | 5372 | 3571 | 1252 | 807 | 750 |
| 23 | 5457 | 3567 | 1001 | 816 | 760 |
| 24 | 5414 | 2904 | 859 | 710 | 768 |
| 25 | 5378 | 2657 | 936 | 673 | 777 |
| 26 | 5316 | 2722 | 653 | 571 | 801 |
| 27 | 5300 | 2706 | 926 | 619 | 757 |
| 28 | 5319 | 2309 | 632 | 723 | 781 |
| 29 | 5224 | 1962 | 564 | 610 | 822 |
| 30 | 5031 | 1994 | 636 | 442 | 827 |
| 31 | 4846 | | 554 | 493 | |

NOTE—Invisible Inflow:—Monthly Acre-feet values converted into mean daily flow in second-feet.
Daily flows of Rawhide Creek and Katzer Drain, see Water Supply Paper 806, U. S. G. S. pages 221, 222, 223.

Figures 1, 2 and 3 attached hereto are graphic representations of that supply daily in second-feet plotted against the priorities as shown on Table XVII, pages 86 to 87 of the Master's report. The year 1932 was the highest year on record since 1929 and reached slightly above the 1904 to 1930 mean and above the 1904 to 1940 mean. This is shown in the graph on page 25 of the Master's report. From the same graph it can be determined that 1934 was the lowest year on record since 1904 and 1936 could be considered a year when the supply was roughly about the dependable flow. Figure 1 shows that in the year 1932 the supply which the Master recommends for distribution on the seventy-five per cent - twenty-five per cent basis rose above the 1500 line only a few times after the middle of July and after the 10th of August never reached that line. In other words, in 1932 after August 10, the seventy-five - twenty-five per cent apportionment basis would have been continuously unfair to Nebraska if we set our standard of fairness at distribution on the priority basis.

Figure 2 for 1934 shows that after June 10 in that year there was only one day when the supply available in that area exceeded the 1500 mark, and except for that day, the supply was at a point where Nebraska would have been entitled more nearly to ninety per cent on a basis of priority of appropriation than to the seventy-five per cent.

Figure 3 for the year 1936 shows that with the exception of a few days in the middle of July and about ten days in the first half of August, the supply never got above 1500 second-feet after July 5. If the year 1936 could be taken as the year of dependable supply, then we

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Fig. 1

1932
DIRECT FLOW
NORTH PLATTE RIVER
BELOW KINGSLEY DAM
AND OF
Overflow Needle Dams Wyo. N-Nebr.
Glendo Reservoir Inflow, Wyo.
Guernsey Reservoir Inflow, Wyo.
Pathfinder Reservoir Inflow, Wyo.
Alcova Reservoir Inflow, Wyo.
Seminoe Reservoir Inflow, Wyo.
Kortes Reservoir Inflow, Wyo.
Pathfinder Reservoir Inflow, Wyo.
Miscellaneous Diversions Between Wyo-Nebraska
Gages and Reservoirs

3766

4051

1932

DIRECT FLOW

Interstate Power Periods

Lingle-Hill

Guernsey

Minatare

Mitchell

Fairfield

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

Fig. 2

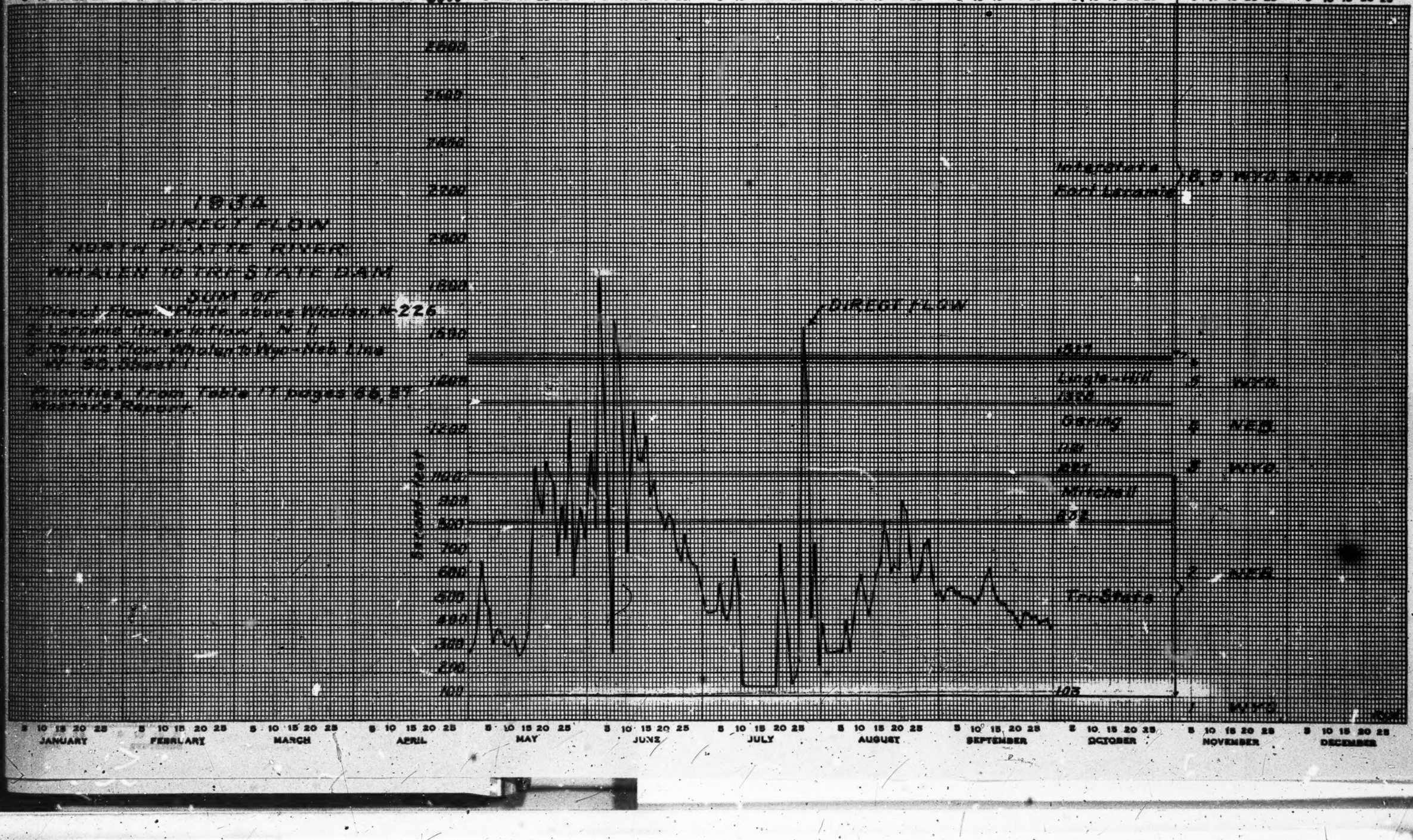
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
5 10 15 20 25
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
100
1934
DIRECT FLOW
NORTH PLATTE RIVER
WHALEN TO TRI STATE DAM
SUM OF
1- Direct Flow, Plate above Whalen, M-226
2- Scotts Bluff Canal Flow, M-11
3- Return Flow Nebraska-Wyo-Neb line M-30 Sheet 1
4- Pumping from Table 17 pages 66,67 Nebraska Report
DIRECT FLOW
Interstate
Fort Laramie
8.9 MED. 3 NEB.
1221
Lingle-Hill
332
Goring
Gering
Mitchell
Torrington
103
3 WYO.
5 NEB.
3 WYO.
2 NEB.
1 WYO.
CFS

Fig. 3

8725 4120 3767 8571 3567

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

5 10 15 20 25

5000

2500

1500

1000

500

400

300

200

100

1938

DIRECT FLOW

NORTH PLATTE RIVER

NEBRASKA-COLORADO STATE LINE

JUNE 25

Diversions N. Platte above Wheeler, N-305

Interstate Canal Diversion, N-306

Return Flow Wheeler to Kiyo-Neb. Line

Tabulated from Table 17, pages 36,37 Bulletin Report

DIRECT FLOW

Interstate Canal Diversion

Fort Laramie

6.9 M.F.S. 5.M.C.S.

Lingle-Mill 325

Spring Run 267

Nichols 232

Int-State

2 M.F.S.

1 M.F.S.

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

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believe that it illustrates the unfairness of the seventy-five - twenty-five division when the standard is taken as priority of appropriation. During July and August, the supply was less than 1000 second-feet more often than it was more than that amount. At a thousand second-feet the Master's recommendation of the division would give Nebraska 750 and Wyoming 250. This would be barely enough for Tri-State with a small amount left over for Mitchell, but would give Wyoming sufficient for all of its priorities down to 1901 and a fair supply to Lingle and Hill (whose priority is 1901) in addition. On the other hand, at a thousand second-feet Nebraska on a priority basis would be entitled to ninety per cent and Wyoming to ten per cent.

Because the straight percentage division method takes no account of the flow of the river in relation to the priorities, we believe that it is not a fair division, and that some other method of apportionment should be devised.

B.

A SYSTEM OF ADMINISTRATION BY "BLOCKS" OR "GROUPS" WOULD BE MORE EQUITABLE FOR THE AREA BELOW WHALEN.

In connection with this subject we refer to Items 28, 32 and 34 of Nebraska's exceptions.

We believe that the true solution of the problem, at any rate so far as concerns the area commencing with the Whalen diversion dam and down stream from there, is an interstate priority schedule resulting in a true recognition of priorities and of the rights of the respective states as based upon the appropriations and uses made

by their respective citizens. If, however, this is rejected, we would urge a division of water based in general upon the lines of the plan discussed on page 159 of the Master's report.

The foregoing discussion demonstrates that the Master's proposed percentage division of 75 per cent to Nebraska and twenty-five per cent to Wyoming is entirely too rigid and does not give sufficient recognition to the fact that rights in the waters vary with the supply. This variance and fluctuation in the rights is inherent in the priority system and exists internally in Wyoming and Colorado as well as in Nebraska. Accordingly, we believe that no apportionment of water between the states can be justified unless it likewise recognizes this situation.

The proposal discussed on page 159 of the Master's report is based upon Table XVII, pages 86 to 87 of the report. It is likewise more graphically described in Table XIX, page 154. We believe, however, that it does not give sufficient recognition to the appropriate distribution of supplies that exceed 1,027 second-feet. We would suggest a schedule as follows:

| | Cumulative Total |
|---|---|
| First 103 second-feet, Wyoming | |
| Next 924 second-feet, Nebraska | 1027 s. f. |
| Next 94 second-feet, Wyoming | 1121 s. f. |
| Next 207 second-feet, Nebraska | 1328 s. f. |
| Next 166 second-feet, Wyoming | 1494 s. f. |
| Next 19 second-feet, Nebraska | 1513 s. f. |
| Next 13 second-feet, Wyoming | 1526 s. f. |
| All above this supply, Nebraska 77%, Wyoming 23%. | |

The above schedule exactly reflects the Master's analysis in Table XVII, pages 86 to 87, and Table XIX, page 154. It will be noted that it subdivides the supply in excess of 1,027 second-feet and less than 1,526 second-feet which the Master does not do on page 159, although such subdivision is thoroughly justified from Table XVII, pages 86 to 87, and Table XIX, page 154. It will also be noted that the above schedule does not follow the Master's proposal on page 159, but rather his analysis in Table XIX on page 154.

On page 159 he proposes that for flows over 1,526 second-feet, Wyoming receive twenty-eight per cent and Nebraska seventy-two per cent. This proposed division, we feel, is entirely unfair to Nebraska. Table XIX shows that Wyoming has 28% and Nebraska 72% of the irrigated acreage priorities that would call for water after the first 1,526 second-feet had been supplied. However, Table XIX, which is based on the previous determinations made by the Master of need for water and acreage requirements, shows that Wyoming requires twenty-three per cent and Nebraska seventy-seven per cent.

Obviously, a system of apportionment above described is exactly as easily administered as the percentage system. For either system, it is necessary, first, to determine the available supply and the Master's proposal for such determination is entirely agreeable to us. As shown on pages 161 to 162 and in paragraph numbered six, on page 179, a very simple system can be worked out for such determination. Practically all of the machinery necessary for such determination is already in existence and is used by the irrigation administration authorities of Nebraska and Wyoming, respectively, for the purpose of their present administration of water.

When the supply is determined, the Master proposes the application of a percentage system and permission to each state respectively to distribute the percentage going to it in accordance with its own laws and regulations. Following the above proposed table, it is as easy to give Wyoming the first 103 second-feet and Nebraska the next 924 second-feet as it is to divide the second-feet by percentages. For example, if the available supply were 600 second-feet, by the Master's proposal, Wyoming would receive 150 second-feet and Nebraska 450 second-feet. According to Nebraska's proposal, Wyoming would receive 103 second-feet and Nebraska 497 second-feet. One apportionment is as easy as the other, once the supply is determined, and the Nebraska proposal would be in accordance with priorities, whereas the Master's proposal would depart widely from them.

If the Master's objections to the priority schedule system are considered valid by the court, we would wish to point out that the Nebraska proposal eliminates each of the remaining three objections which the Master does not himself eliminate on page 149. Nebraska's proposal of a "block" system would leave each state free to administer its own portion of the water intrastate just as much as the Master's percentage system. There would be no question as to this decree constituting a determination or limitation of the rights of individual appropriators. The administrative detail would be precisely the same under the Nebraska "block" system as under the Master's percentage system.

C.

## THE MASTER'S PROPOSED DECREE FAILS TO AFFORD PROTECTION OF NEBRASKA LANDS IN THE NORTH PLATTE PROJECT AGAINST THE JUNIOR KENDRICK PROJECT.

Reference is made to Item 29 of Nebraska's exceptions.

The exception above referred to is directed specifically to an apparent omission in paragraphs III and IV of the Master's recommendation for a decree found on pages 177 to 178. The proposal therein contained insofar as it requires the Kendrick Project to observe priorities is exactly in accord with Nebraska's contentions. It is to be noted, however, that paragraph III of the proposed decree requires the Kendrick Project to observe the rule of priority in relation to the appropriations of the Nebraska lands supplied by the French Canal and by the so-called state line canals which are specified in subdivision (b) of paragraph III appearing on page 178 of the report. Paragraph IV, appearing also on page 178, provides for priority as among Pathfinder, Guernsey, Seminoe and Alcova Reservoirs. We believe, in view of the preceding portions of the report, that it is only by oversight that protection against out of priority use of the Kendrick is not extended to Nebraska lands in the North Platte Project, namely, the Gering-Fort Laramie Irrigation District under the Fort Laramie Canal, the Pathfinder Irrigation District under the Interstate Canal, and the Northport Irrigation District Canal under the Tri-State Canal. We particularly call attention to the portion of the Master's report, pages 137 to 143, headed "Kendrick Project Regulation." We quote:

"The proper regulation for the Kendrick Project would be one requiring the observance of priorities, Alcova to Tri-State Dam, both in the storage of water in the Seminoe and Alcova Reservoirs and in the diversion of natural flow for the Casper canal" (page 139).

"The justification for singling out this project for individual treatment is its magnitude and juniority. Being the latest appropriation on the river between Pathfinder and the Tri-State Dam, its position, so far as priority is concerned, is one of complete subordination and isolation as distinguished from a project occupying an intermediate position between seniors and juniors. Its subordination to the North Platte project is not only a matter of priority but also a matter of express contract between the United States and the Casper-Alcova Irrigation District" (page 140).

We would suggest, as above pointed out, that the decree for the regulation of Kendrick Project as proposed in paragraphs III and IV of the Master's proposed decree would be incomplete unless it also provided for regulation in relation to the North Platte Project. Such regulation would be only simple justice in view of the respective priorities. No objection could possibly be made in view of the contract provision quoted on pages 140 to 141 of the report. It cannot be said that the proposed regulation would be unnecessary in view of the proposal of the United States for a "pooling" or joint operation of the waters of Pathfinder or Seminoe.

We would propose that the recommended decree should be amended by adding after the words "state line canals" in the second line from the bottom of page 177

the words, "and by the Interstate, Fort Laramie and Northport Canals."

D.

## THE MASTER'S REPORT MAKES AN INADEQUATE ALLOWANCE OF WATER FOR NEBRASKA LANDS IN THE WHALEN TO TRI-STATE DAM SECTION.

Reference is made to Items 12 and 32 of Nebraska's exceptions.

The Master arrives in Table II, page 59, at a total requirement of all canals in this section of 1,072,514 acre-feet which is reduced to an irrigation season requirement, because of winter diversions for storage, to 1,027,000 acre-feet. With reference to the requirements of the Tri-State Canal, we will discuss our exceptions below under the discussion of Nebraska Exception No. 11. It is sufficient here to state that we believe that the Tri-State has not received completely fair treatment in the Master's analysis, particularly, when it is considered in relation with the treatment of irrigation demands in Wyoming and Colorado. It is our contention that instead of 183,050 acre-feet, the Tri-State requirements should be 196,000 acre-feet.

In another respect, we believe that this table of Nebraska requirements unjustly treats Nebraska's demands. We refer to the requirements of the Gering-Fort Laramie Irrigation District. It will be recalled that the Gering-Fort Laramie Irrigation District includes the Nebraska lands which are supplied from the Fort Laramie Canal. The waters diverted at Whalen for the benefit of these lands must pass through the length of the Fort Laramie Canal in Wyoming before reaching Nebraska and, therefore, must suffer a greater canal loss than do the waters

which are diverted for the Wyoming lands supplied by the same canal. To be on a parity, there should be the same supply per acre in the canal at the state line for the Nebraska lands as there is in the canal at Whalen for the Wyoming lands. There is no reference in the Master's report to the length of the canal in Wyoming before the Nebraska lands are reached, but since, by river distance, the Whalen diversion dam is 42 miles above the Nebraska state line, the length of the Fort Laramie Canal is at least that great. A reference to the map, opposite page 57, shows that because of its meanderings, the Fort Laramie Canal between Whalen diversion dam and the Nebraska state line must be at least one-third longer, which would make it approximately fifty-five miles.

It is to be noted, however, that in the tabulation on page 59 and in the discussion, pages 196 to 204, the Gering-Fort Laramie Irrigation District in Nebraska is given precisely the same headgate allotment in acre-feet per acre as is the Goshen Irrigation District in Wyoming, which supplies the Wyoming land under this canal. Further, a reference to Table II, on page 59, shows that in all other instances where there are two separate areas on the same canal, the lower area is given a substantially larger allotment of water in terms of headgate allotment in order to compensate for canal losses in the upper section of the canal. Thus, in the Interstate Canal, the Lingle and Hill Districts are given 3.33 acre-feet per acre being close to the headgate, and the Pathfinder District is given 4.28 because of its lower position in the canal. Similarly, the Mitchell is given 2.57 acre-feet per acre, and the Gering, which commences at a lower point on the same canal is given 2.67.

The Tri-State is given 3.5 and the Northport being in the lower portion of the same canal is given 4.2.

We would urge that a corresponding treatment should be given to the Gering-Fort Laramie Irrigation District, and that its allotment should be increased by fifteen per cent over that of the Goshen Irrigation District which would make its allotment in acre-feet per acre 3.16 and its acre-feet per annum 169,165. This would increase the total requirement as shown on Table II, page 59, to approximately 1,094,000 acre-feet. When we add the increased allotment, which we believe should be given to Tri-State, we get a total of 1,107,000 acre-feet.

## VII.

## The Allotment of Water to Colorado is in Excess of Colorado's Equitable Share.

On this subject we refer to Items 3 and 22 of Nebraska's exceptions.

The allotment of water to Colorado is discussed on pages 9, 133 and 177 of the Master's report. On page 9, in paragraph numbered VI, the Master states as one of his basic conclusions that equity requires restraint of any further expansion of irrigation from the river or its tributaries in North Park, but does not require restriction upon or interference with present uses. On pages 125 to 133, the matter is further discussed, and on page 177 in paragraph I of the recommended decree, the final conclusion is reached.

It is to be noted that on page 132 the Master repeats the recommendation that there should be a prohibition against further expansion of irrigation in North Park, and on page 133, he makes the specific recommendation

which is repeated in paragraph I of the recommended decree on page 177. His recommendation is to limit Colorado to the irrigation of 135,000 acres; to the accumulation annually of 17,000 acre-feet in storage facilities and to the exportation of 6,000 acre-feet per annum and to the South Platte Basin.

It is to be noted that on page 29 and on page 125 the acreage irrigated in Colorado is given as 131,810 acres for 1939, the date of the last figures given, which in turn comes from Colorado's Exhibit 118. While the footnote to page 133 indicates that the 135,000 acre allowance is intended to allow a safety margin of 3,200 acres; no reason is given for such a "safety margin." As will hereafter be seen, Nebraska projects are not treated in this same way, and we believe that equity requires uniform treatment of the respective states. If a "margin of error" is to be allowed for Colorado and (as will hereinafter be seen) for Wyoming, Nebraska projects should have similar treatment. On the other hand, if Nebraska projects are to be held to the exact acreage shown by the evidence to be irrigated, Colorado and Wyoming should be subjected to a similar limitation.

It is, however, with reference to the storage of water that the Master's liberal treatment of Colorado becomes most apparent. The footnote, on page 133, shows that the present storage capacity of the reservoirs in the North Platte Basin in Colorado is 12,000 acre-feet. This, no doubt, is based upon the engineer's stipulation, page 5. The engineer's stipulation is treated by the Master and by all parties as evidence, and we think is entitled to that weight. It is so treated on page 6 of the Master's report and is used at various points in the report such as page 40, page 60 and page 67.

The departure in the allowance made by the Master allows a 5,000 acre-feet increase in storage in Colorado—more than forty per cent. It appears to be based upon "appropriations for storage" (see footnote, p. 133).

It seems apparent that the 17,000 acre-feet "appropriations for storage" is derived from Colorado Exhibit 35, pages 17 and 18, wherein the aggregate appropriations decreed for storage amounts to 17,050 acre-feet. This includes Big Creek Lake Reservoir, which is there stated to have a decreed appropriation as of December 31, 1895, for 3,564,000 cubic feet (6,900 acre-feet).

As shown by the testimony of M. E. Ball (Record, pp. 25,966-25,968) and R. I. Meeker (Record, pp. 26,123-26,127), the actual capacity of Big Creek Lake Reservoir is approximately 1,000 acre-feet. This more than accounts for the difference of 5,000 acre-feet between the actual reservoir capacity of 12,000 acre-feet and the decreed reservoir appropriations of 17,000 acre-feet.

The record is clear, however, that the owners of Big Creek Lake Reservoir have abandoned the appropriation in excess of 1,000 acre-feet for more than twenty years, and as settled by the decisions of the federal courts, this abandonment is final.

The case of *United States* v. *Big Horn Land and Cattle Company*, decided by the Circuit Court of Appeals for the Eighth Circuit, January 27, 1937, is found in 17 Fed. (2d) 357. Big Creek Lake is a natural lake on the public domain of the United States. The Big Horn Land and Cattle Company, as successor to William Marr, held a permit from the United States for the construction of works to increase the elevation of the water in said lake and to use said increased capacity as a storage reservoir

for the storage of water for irrigation. The opinion of the Circuit Court of Appeals shows that its actual capacity with the works constructed was 1,075 acre-feet, and the conclusion reached by the court was that the defendant, Big Horn Land and Cattle Company, had abandoned the right to enlarge the capacity of the lake for reservoir purposes beyond this 1,000 acre-feet, and that all rights in excess of said 1,000 acre-feet must be cancelled.

The conclusion is inescapable that the rights alleged to exist under Colorado decrees and appropriations to increase storage capacity of reservoirs in the North Platte Basin in Colorado beyond the 12,000 acre-feet cannot be accomplished under those existing decrees. The privilege of increasing storage capacity by an additional 5,000 acre-feet can only be taken advantage of by new projects which would constitute a forty per cent increase of the present storage rights and would interfere seriously with storage opportunities in the Pathfinder Reservoir, and thus interfere with Nebraska rights.

On pages 127 to 128 of the Master's report, there is a discussion of the effect of uses in Colorado upon the Pathfinder Reservoir. It is pointed out that since 1930 this reservoir has never been filled and has always been in need of water for storage. It is further pointed out that approximately 30,000 acre-feet a year has been consumptively used in Colorado by rights junior to the Pathfinder priority. Thus, the Master's report clearly shows that even if existing uses are permitted to the extent that they have in the past been diverting, there is an annual encroachment of 30,000 acre-feet upon Pathfinder storage with corresponding detriment to the lands supplied by that storage, four-fifths of which are in Ne-

braska. The Master's report allows a "safety margin" of 3,200 acres in addition to that now being irrigated in Colorado, and 5,000 acre-feet additional storage. This would add from seven to ten thousand acre-feet onto the present encroachments on Pathfinder rights, thus increasing the damage presently felt by Nebraska appropriators. It is suggested that the "margin of safety" should be computed in the other direction, and that Nebraska should be protected by decreasing instead of increasing the allotment of acreage in relation to that presently being irrigated.

## VIII:

## The Master's Report Erroneously Makes an Excessive Allowance of Water to the Wyoming Area Above Whalen.

We refer to Item 4 of Nebraska's exceptions.

As in the case of the Colorado area, the Master's report, we believe, makes an excessive allowance of water for the Wyoming area above Whalen. Since the Master's report divides this into two sections, we will treat the two sections separately following the outline of the Master's report, namely, the area from the Colorado line to Pathfinder and the area from Pathfinder to Whalen.

### A.

### COLORADO LINE TO PATHFINDER.

This is discussed in the Master's report, pages 47 to 51 and 133 to 136. It is determined by the Master that 149,400 acres are actually irrigated in this area (Report, pp. 48, 133). The Master, however, again seems to wish to make an allowance for "margin of error" and "fluctu-

ations in irrigation." Accordingly, he increases the area arbitrarily by 3,600 acres to make it 153,000 acres (Report, p. 135). The same argument as just used with reference to the Wyoming area applies. The strict application of an allowance based entirely on exact acreage presently irrigated which is applied by the Master in the area below Whalen should, we believe, be applied in the area above Whalen. Alternatively, if liberality is allowed above Whalen, a corresponding liberality should be allowed in the area below.

B.

THE AREA FROM PATHFINDER TO WHALEN.

This area is discussed in the report, pages 51 to 53 and 145 to 148. The Master discusses only diversions in this area from the main stream proper since encroachments by tributary diversions would encroach only on natural flow supply. The Pathfinder Reservoir being above this area would, of course, be unable to capture any of this water. The record of stream flow shows that these tributaries usually are dry or practically so by the time when the need for natural flow is great. We do not object to irrigation uses, whether by seniors or juniors, on these tributaries. We join in the objection of the United States to increase of storage facilities on these tributaries.

With reference to diversions from the main stream the Master makes a similar allowance for "margin of error" and "fluctuation of irrigation." While, as stated by the Master on page 146 and on page 51, only 14,000 acres in this area are presently being irrigated, he makes an allowance of 15,000 acres (Report, p. 148). This

represents an increase of approximately seven per cent. We believe that if a margin of error or allowance for fluctuation is given in this area, it should likewise be given in the area below Whalen.

## IX.

## Allotment of Acreage Irrigated and Water Supply to Nebraska Projects is Insufficient.

Nebraska contends that, particularly in view of the treatment of the Colorado irrigated areas and the Wyoming areas above Whalen, the Nebraska projects are unduly restricted both as to acreage and allotment of water. In addition to the above discussion concerning certain projects, particularly, the Gering-Fort Laramie, we wish to suggest that the Nebraska projects should be allowed at least as favorable treatment as given to the Wyoming area diverting from the river between Pathfinder and Whalen. As above pointed out, an allowance of seven per cent as a margin of error and for fluctuations in irrigation is given. This allowance could very properly be applied to each of the Nebraska projects, and we think fairness requires it. We wish, however, to call particular attention to three of the Nebraska projects, namely, Tri-State Canal or Farmers Irrigation District; Winters Creek Canal; and Central Canal.

### A.

### TRI-STATE.

We refer the court particularly to Items 11, 30 and 31 of the Nebraska exceptions.

Particular discussion of this canal is found on pages 233 to 244 of the Master's report. It is also frequently

referred to as, for example, in Table V, page 73; Table XII, page 78; Table XV, page 81; Table XVI, page 83; Table XVII, page 86, and in the table included in Section 3 (b) of the proposed decree found on page 178. In view of the fact that it is the largest canal outside of the canals of the North Platte Propect in the Whalen to Tri-State Dam area; that of the larger canals it is the most senior; that it represents the first diversion taken out of the river in the State of Nebraska; it has been made the target of frequent assaults and has had to defend its rights repeatedly in the past. As a project the Farmers Irrigation District and its predecessors, the Farmers Canal Company and the Tri-State Land Company, have many times been the subject of litigation in the courts of the State of Nebraska. In the record in this case, it has been assailed more than any other single project, and its evidence as to acreage, etc., has undergone the closest scrutiny. The result has been to squeeze it down without any "margin of error" or "allowance for fluctuation in irrigation." We wish to discuss it under different heads.

1.

THE MASTER ERRONEOUSLY FAILED TO TAKE ACCOUNT OF THE "PREFERRED RIGHTS" UNDER THE TRI-STATE CANAL.

It was shown by the evidence and is undisputed that included in the lands watered from the Tri-State Canal are approximately 3,000 acres of land under what is known as "preferred rights." In order not unduly to encumber the material presented to this court, we wish to refer to four Nebraska cases wherein the full history of this situation is disclosed. These cases are *Clague* v.

*Tri-State Land Company*, 84 Neb. 499, 121 N. W. 570; *Fenton* v. *Tri-State Land Company*, 89 Neb. 479, 131 N. W. 1038; *Vonburg* v. *Farmers Irrigation District*, 128 Neb. 748, 260 N. W. 383; and *Vonburg* v. *Farmers Irrigation District*, 132 Neb. 12, 270 N. W. 835.

As disclosed by the statements of fact in these cases, as well as by the evidence in the instant case, when the corporation known as the Farmers Canal Company took over the completion of the canal from the original persons interested, an arrangement for "preferred rights" was made. At that time the canal was partially completed and capable of delivering water to the lands close to the headgate. The Farmers Canal Company undertook to complete the canal and acquired all of the property rights in the canal that then belonged to the original group who had planned and commenced its construction. By way of compensation for the transfer of the physical properties and intangible rights, the Farmers Canal Company undertook that these persons originally interested, and their assigns, should forever have rights to water for lands under the canal and within forty miles of the headgate. These rights were "preferred" in a double sense in that delivery to such lands would be in preference to delivery to other lands under the canal and in that such deliveries were to be made free of charge for operation, maintenance, etc. By subsequent conveyances, title to the canal and to the intangible rights owned by the Farmers Canal Company was transferred to the Tri-State Land Company and subsequently by the Tri-State Land Company to the Farmers Irrigation District the present owner of the rights. The Nebraska cases above cited establish the fact that the present owners of the canal are bound to carry out the terms

of the original contract between Akers and his associates on the one hand and the Farmers Canal Company on the other.

The approximately 3,000 acres of preferred right lands are not included in the Farmers Irrigation District (see par. 30, p. 20, Nebraska Exhibit 593. See also page 238 of the Master's report). The preferred rights are shown by the Master's report to consist of 3,041.3 acres which, of course, are included in the Master's total estimate of acreage of 52,300 acres, being 51,000 acres under the 1887 priority and 1,300 under the 1902 priority (see Master's report, p. 243).

The Tri-State Warren Act contract is for 180,000 acre-feet (p. 244 of the Master's report; p. 190 of the Master's report).

The Master suggests that in connection with the Warren Act contracts his allotment of water in each case is in excess of the amounts guaranteed under the Warren Act contracts, and that, therefore, his proposals for a decree do not contemplate any interference with the terms of such contracts (see report, p. 189).

It is, however, to be noted that the Warren Act contract is simply with the Farmers Irrigation District (Report, pp. 190-191) and, therefore, does not include the preferred rights. The 3,000 acres of preferred rights under the Master's allotment would be entitled to a headgate diversion of 3.5 acre-feet per acre or a total of, 10,500 acre-feet. When this is deducted from the 183,000 acre-foot allotment made by the Master for the Tri-State Canal, there would be 172,500 acre-feet left available out of the Master's allotment for the Farmers Irrigation Dis-

trict, whereas the Warren Act contract guarantees 180,000 acre-feet per annum. Thus, the Master's report is in error where, at the bottom of page 244, it is asserted that the Master's allotment is 3,000 acre-feet in excess of the Warren Act contract. On the contrary, it is 7,500 acre-feet less. We do not believe that it is the Master's intention to recommend that this court interfere with existing contracts for the use of storage water. In order that the Warren Act contract belonging to the Farmers Irrigation District may be properly recognized, it would seem clear that the allotment of water should be increased at any rate to 190,500 acre-feet in the seasonal limitation contained in paragraph 3 (b) of the proposed decree in the report at page 178.

2.

AS BETWEEN THE UNITED STATES AND PROJECTS IN WHICH IT IS INTERESTED, AND THE FARMERS IRRIGATION DISTRICT, AN ESTOPPEL EXISTS GIVING THE FARMERS IRRIGATION DISTRICT 60,000 ACRES IRRIGATED.

We believe that the Master overlooked the effect of the decree in the case of *United States* v. *Tilley*, 124 Fed. (2d) 850.

In the case of *United States* v. *Tilley*, the United States brought suit for the purpose, among other things, of construing the Warren Act contract between the United States and the Farmers Irrigation District. A decree was entered against the United States on that issue by the District Court of the United States for the District of Nebraska, and this decree was affirmed, so far as concerns the Warren Act contract, by the decision of the Circuit Court of Appeals for the Eighth Circuit, 124 Fed. (2d) 850. The record in the district court including

the findings of fact, conclusions of law and decree, as well as the pleadings and other pertinent portions of the record, were introduced as Nebraska Exhibit 593.

A reference to paragraph 30 of the findings of fact, appearing on page 20 of Exhibit 593 (which is reproduced in the appendix among the selections from the record), shows that it was there determined that the acreage of the Farmers Irrigation District was 60,000 acres with 3,000 acres for preferred rights in addition or a total of 63,000 acres.

We believe that as between the United States together with the irrigation projects sponsored by it on the one hand, and the Farmers Irrigation District on the other, the United States is estopped to deny that the total irrigated acreage under the Tri-State Canal is 63,000 acres. The question of the rights of the Farmers Irrigation District under its Warren Act contract were squarely put in issue and the controversy in that respect was as to whether or not the Farmers Irrigation District should be limited to 180,000 acre-feet of water from all sources plus a proper allowance for the preferred lands. Obviously, the acreage to be irrigated would be an important element in this question, and under familiar rules, the estoppel exists. A decree of a court of competent jurisdiction upon an issue properly raised by the pleadings is binding and conclusive upon all parties to the litigation together with those in privity with them.

If the proper effect is given to the decree above referred to, the acreage under the Tri-State Canal should be, as between the United States and Farmers Irrigation District, 220,500 acre-feet per annum. So far as con-

cerns paragraph 3 (b) of the proposed decree, on page 178, this should be the limitation on Tri-State Canal, and the uses in the operation of the North Platte Project and the Kendrick Project should be required to recognize Tri-State's priority up to that amount.

3.

FOR MARGIN OF SAFETY AND ALLOWANCE FOR FLUCTUATION IN IRRIGATION TRI-STATE SHOULD HAVE A SEVEN PER CENT INCREASE.

From the point of view of the margin of safety and allowance for fluctuation in irrigation which the Master has given to the comparable area between Pathfinder and Whalen, we believe that Tri-State should be allowed a seven per cent increase in acreage and allotment of water over the amount the Master determines as the strictly accurate acreage irrigated. This is based, of course, upon familiar principles of fairness in that the Nebraska land in question should be given at least as favorable treatment as is afforded to the Wyoming land. As above pointed out, the area between Pathfinder and Whalen, so far as concerns diversions from the main stream, is given an acreage of 15,000 acres as compared with the 14,000 acres which the Master finds to be all that is currently irrigated. The seven per cent increase thus allowed, should, we believe, be applied likewise to Tri-State. This seven per cent applied to the 52,300 acres which the Master finds to be the irrigated acreage under Tri-State would give an increase of 3,700 acres or at 3.5 acre-feet per acre, an increase of approximately 13,000 acre-feet making a total water allotment of 196,000 acre-feet.

B.

## THE ALLOTMENT TO WINTERS CREEK CANAL IS INSUFFICIENT.

Winters Creek Canal, lying as it does below the Tri-State Dam, is important only as the court adopts Nebraska's contention that Nebraska canals east as far as Bridgeport should be taken into account.

This canal is discussed on page 258 of the Master's report and it is there evident that while Nebraska's claim is for 5,041 acres, the Master allows only 4,494 acres, a difference of 547 acres. The Master determines that the river requirement is only for 1,300 acres, the balance to be made up by interceptions and by drains.

We believe that the allowance for margin of error and for fluctuation in irrigation should be made as above urged. This would represent a seven per cent increase or an increase of about 300 acres in total irrigated area and about 100 acres in area watered from the river.

C.

## THE CENTRAL CANAL ALLOTMENT OF ACREAGE IS INSUFFICIENT.

This canal is in practically the same condition as the Winters Creek. It lies in the area between Tri-State Dam and Bridgeport, and, therefore, is eliminated, if the court adopts the Master's recommendation of eliminating the lands watered from canals diverting east of Tri-State Dam.

The canal is discussed on page 259 of the Master's report. The claimed Nebraska acreage is approximately

2,200 acres and the master's report recommends an allowance only for 1,600 acres. A seven per cent increase would make an increase of approximately 110 acres or a total of 1710. We believe that fairness requires this treatment.

## X.

**Page 22 of the Master's Report Contains Erroneous and Misleading Figures as to Water Supply and Contribution of the States Respectively.**

This matter is to some extent discussed on pages 2 to 3, supra, wherein some of the errors are pointed out.

The Master evidently misunderstood Colorado Exhibit 168 and used the figures therein given for water supply between the Nebraska-Wyoming state line and the City of North Platte for the area between the state line and Kingsley Reservoir. This results in some distortion of figures, and in the interest of accuracy should be corrected, although the consequences are perhaps not too important in view of the disposition recommended.

We believe, however, that the figures in the middle of page 22 for the respective contributions of Nebraska, Wyoming and Colorado should be revised to exclude the unusable water. If this were excluded, the Wyoming contribution would be 1,482,800 and the Nebraska contribution 936,000.

However, the Master made no recommendation of division upon the basis of respective contributions, and for the purpose of a decree or a final disposition of this case, the point perhaps does not have any very great practical importance.

## XI.

### The Master's Recommendation as to Storage Water And Warren Act Contracts is Unfair to Nebraska.

We refer to Items 19, 25 and 26 of Nebraska's exceptions.

On page 104 and on pages 156 and 157 of the report, certain remarks are made by the Master which we think not only are inconsistent with the report generally but also improperly reflect the true legal and factual relationship of the Nebraska users of storage water to the Wyoming users of water.

It is there implied that it is not within the province of this court to recognize the contractual relationship existing between Nebraska appropriators who have contracts with the United States on the one hand and the United States on the other as a contracting party guaranteeing a supply, the deficiencies of which are to be made up out of storage water. It will be recalled that the act of February 21, 1911, known as "The Warren Act" (36 Statutes 925, U. S. C. A. Title 43, Sections 523, 524 and 525), authorized the United States to make available to already existing irrigation projects storage capacity in its reservoirs where such capacity was in excess of the needs and requirements of reclamation projects. Under the authority of this act, the United States has contracted with certain Nebraska projects including the Gering Irrigation District, Farmers Irrigation District (Tri-State), Central Irrigation District, Chimney Rock Irrigation District, Browns Creek Irrigation District and Beerline Canal Company. These contracts guarantee to the respective canals a supply of a certain number of acre-

feet per annum delivered according to a specified schedule, and deficiencies are to be made up out of storage water in the Pathfinder Reservoir. Substantial sums of money have been paid by these Warren Act contractors for the purpose of defraying in part the cost of the construction and of the operation and maintenance of the reservoir and various works connected with it.

In some of their phases, these contracts are discussed, pages 189 to 195 of the report and likewise pages 34 and 35 of the report. It is therein recognized that these contracts are binding obligations and must be recognized in any future operation of the river.

However, on page 104 of the report (Nebraska Exception No. 19) and on pages 156 to 157 of the report (Nebraska Exceptions 25 and 26), it is implied that the possession of storage rights by Nebraska state line canals is a factor which should enable Wyoming juniors to take natural flow water, which, on a priority basis, should go to the Nebraska seniors because the Nebraska seniors might be able to fall back on their storage rights. On page 104 of the report, it is recognized that proper administration permits a canal holding both natural flow and storage rights to take its natural flow and conserve its storage. It is recognized that this must be permitted in order to enable such a canal to obtain the full advantage that it has paid for. Yet the recommendations of the Master seem to imply that such benefits of a storage contract will not be recognized interstate.

In fact, if the Wyoming junior which has no storage rights is permitted to take natural flow which on a priority principle would belong to the senior Nebraska canal

which has storage rights, in effect the Wyoming junior which has paid nothing for the storage contract is getting the entire benefit of what the Nebraska senior has paid for. It must be remembered that in practical administration where storage water is carried down the main stream commingled with natural flow water it is only by bookkeeping system that the two can be separated and segregated. The total flow is enriched by the release of storage water, and in making such release, the owner of the storage reservoir earmarks the storage for particular projects. But for such storage release, there would not be enough water to give the water both to the juniors and to the senior. Giving the natural flow to the junior and the storage to the senior in effect gives the junior the benefit of the senior obtaining the storage.

Moreover, during the early part of the irrigation season, the time when storage must be made if storage is ever to be made, during that period the owner of the storage reservoir must hold back the water if it is to be made available during the late season period of low natural flow. In a channel reservoir such as the Pathfinder, a reservoir cannot be operated both to store and to release storage at the same time. It would disrupt the entire operation of the reservoir system to compel a senior such as Tri-State to take storage during May and June so that a Wyoming junior might have the natural flow which Tri-State should rely on.

We believe that the river can equitably be operated only on the basis that storage rights are recognized, and that a water user take his rights in accordance with law and the contracts lawfully made.

## XII.

### Miscellaneous Errors of Terminology.

We wish to call the court's attention to certain erroneous or ambiguous uses of terms made by the Master which should be corrected in any decree, since they might be the cause of considerable confusion and controversy in the future.

At numerous points, the Master refers to the area "below Whalen" or "between Whalen and Tri-State Dam." The context makes clear that he actually means the area commencing with the Whalen diversion dam and including the two large government canals diverting at Whalen (Fort Laramie and Interstate Canals). We would suggest that a less ambiguous term and one more nearly expressing the meaning would be "below Guernsey outlet." A reference to the map, opposite page 57, shows that between the outlet of Guernsey Reservoir and the Whalen diversion dam, there are no diversions, and that the use of the term "below Guernsey" or "between Guernsey outlet and Tri-State Dam" would exactly express the meaning.

Similarly, the Master refers frequently to the Wyoming area above Pathfinder or the Colorado-Wyoming state line to Pathfinder Reservoir. We refer, for example, to pages 47 to 51, pages 133 to 136 and in the recommended decree, pages 177 to 178, particularly paragraph numbered 2 on page 177. We believe that the Master does not intend to include Seminoe Reservoir which lies above Pathfinder in the area irrigated above Pathfinder, and it would seem proper to define that area so as to exclude Seminoe Reservoir.

Another error in terminology is in the use of the term "North Park" as referring to the entire Colorado area tributary to the North Platte River. In point of fact, North Park does not include the entire watershed of the North Platte and the term "Jackson County" would, we believe, more nearly accurately explain the Master's meaning.

Respectfully submitted,

WALTER R. JOHNSON,
Attorney General of Nebraska,

JOHN L. RIDDELL,
Assistant Attorney General of Nebraska,

PAUL F. GOOD,
Special Counsel,
*For State of Nebraska.*

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**TESTIMONY OF R. H. WILLIS, CHIEF OF NEBRASKA BUREAU OF IRRIGATION, GIVEN JULY, 1936, RECORD, PAGES 621 TO 624, 626 TO 629.**

Q. Did you on or about April 26, 1933, have a conference with the State Engineer of Wyoming?

A. Yes, sir.

Q. Who was the State Engineer of Wyoming at that time?

A. Mr. True—James C. True, I believe.

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JUDGE ROSE: James B.

Q. James B. True?

A. James B. True.

Q. How long had he been State Engineer at that time?

A. I don't know. I don't know just when he went in office, but he may have gone in the 1st of January of that year.

Q. Had it been long that he had been in office?

A. No. 2 or 3 months.

Q. Had he been State Engineer during the preceding irrigation season?

A. No, sir.

Q. Who went with you on this call upon Mr. True in Cheyenne?

A. C. G. Perry.

Q. And what position did Mr. C. G. Perry hold?

A. He is a special assistant attorney general.

Q. Of what State?

A. Of Nebraska.

Q. Did he have any connection with the matters dealing with irrigation?

A. Yes, special in irrigation.
Q. He was special assistant attorney general for irrigation?
A. Yes, sir.
Q. And where did he live?
A. Bridgeport, Nebraska.
Q. And still lives there?
A. What is that?

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Q. And he still lives there, does he?
A. Yes, sir.
Q. Was this conference between yourself and Mr. Perry on the one hand, and Mr. True on the other, at your request?
A. Yes, sir.
Q. How did you make arrangements for it?
A. By telephone, 2 days prior to the meeting.
Q. Now, would you tell what happened at this conference; what was said and done at the conference of April 26, 1933, at the office of James B. True, at the State House in Cheyenne?
A. Mr. Perry and myself arrived there at the office and we went into his private room and visited a little while about different subjects, and finally Mr. True said that, "I know what you are up here for. There's no need of beating around. I am ready to lay - - I want - - we will lay all of our cards on the table."

He says, "We will not administer the waters of Wyoming, of the river, for the benefit of Nebraska," or that he would not close any canals in Wyoming to benefit senior canals in Nebraska, until we have a compact.

Q. Then what further was said, and by whom?

A. Mr. Perry took part in the conversation, of course. I think I have covered the substance of the conversation. I don't recall anything of importance outside of that.

Q. Previously when you had made requests upon the State Engineer of Wyoming to close Wyoming junior canals for the benefit of Nebraska senior canals, had

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Wyoming complied with those requests?

A. No, sir.

Q. And since then they have complied, have they, with these requests?

A. No, sir; they have not.

Q. How did this conversation between yourself and Mr. Perry on the one hand, and Mr. True on the other, how did it terminate?

A. We closed the subject - - a discussion of the subject - and took up some other matters with Mr. Gleason, who was there to attend this same meeting but was late in arriving; but that was on other subjects.

Q. Was Mr. Gleason there at the time that Mr. True made the statement you have just stated?

A. No, I don't think so.

Q. In this conference, was there any mention of waste in getting the waters to Nebraska?

A. No, sir.

Q. Did Mr. True say anything about it being wasteful to get water down to the State of Nebraska?

A. No, sir; he did not.

* * *

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Q. (Mr. Good resuming) Was any mention made of the topic of an equitable apportionment to the State of Wyoming?

A. No, sir.

Q. Was any mention made of there being greater beneficial use of the waters of the Platte River in keeping the waters for Wyoming appropriators?

A. No, sir; nothing of that sort.

Q. Was there any mention made of anything about Nebraska not making the greatest beneficial use of the water?

A. No, there was not.

Q. Or that Nebraska wasted the waters?

A. No, sir.

Q. Was there a subsequent conference held in the year 1934 with the State Engineer of Wyoming?

A. Yes, sir.

Q. When was that held?

A. On July 29, 1934.

Q. And where was that held?

A. In Cheyenne.

Q. Who was there representing Nebraska?

A. There was Paul F. Good, Attorney General; R. L. Cochran, State Engineer; C. G. Perry, Special Assistant Attorney General, and myself.

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Q. What was Mr. R. L. Cochran's exact position at that time?

A. He was State Engineer on vacation at that time.

Q. And who else was there?

A. The Wyoming representatives?

Q. Yes.
A. Earl Lloyd, Edwin W. Burritt, State Engineer; Charles Gaenssler, Fred Alberts and C. F. Gleason.
Q. Mr. Gleason was also there?
A. Yes, sir.
Q. Where in Cheyenne was this conference held?
A. It was held at Mr. Burritt's home.
Q. At whose invitation?
A. We were invited to the home by Mr. Burritt.
Q. Did you call him up about where you were to meet?
A. Yes, I called him. I believe I called him from the hotel by 'phone, as I thought we were going to meet at his office, but he wasn't well that day, and invited us down to his house.
Q. Now, will you state what was said at that conference?
A. All of us had something to say at the conference, of course. The first that I had to say at the opening of the meeting was to have it understood what we were there for. That the Wyoming junior appropriators were taking water in the past whereby the senior appropriators of Nebraska were being deprived, and it seemed that we should have a better understanding. And Mr. Good then discussed the law of the river - - that is, the laws of Nebraska and Wyoming, as to priorities; and, in fact, there

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was a general discussion from the different parties.
Q. What did Mr. Burritt say?
A. Mr. Burritt said that there was no law that would permit him to recognize or deliver any water to Nebraska appropriators, or, in other words, no law to

administer water for Nebraska appropriators - - that is, no Wyoming law.

Q. Did Mr. Burritt say anything about calling someone else in?

A. Yes. Because of our talking of the law he thought that he ought to have the advice of an attorney, so he called in Mr. Greenwood. He lived only a few doors from Mr. Burritt's home.

Q. In discussing the Wyoming law, did Mr. Burritt say anything further?

A. Well, yes. After you (referring to counsel, Mr. Good) discussed the law, he said that he could not recognize appropriators of Nebraska until we either had a compact or an order of the Federal Supreme Court.

Q. Did Mr. Greenwood come?

A. Yes, he arrived.

Q. And what was said or done after Mr. Greenwood arrived?

A. Well, Mr. Greenwood said about the same - - gave the same opinion as Mr. Burritt had expressed; and he said that there was no Wyoming law that would authorize - -

Q. Speak up louder, Mr. Willis.

A. Excuse me. He said that there was no Wyoming law to authorize the State Engineer to administer water for Nebraska appropriators.

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Q. Did Mr. Cochran say anything about it at that time?

A. Yes, sir.

Q. What did he say?

A. Well, Mr. Cochran said that he expected Wyoming to recognize Nebraska appropriators because of the

implied understanding we had with Wyoming officials prior to that meeting.

Q. Did Burritt say anything in conclusion or anything about his intentions? Just state what he said.

A. Well, after saying there was no law, why he said that he would not recognize Nebraska appropriators when the Wyoming canals had need for the water.

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**TESTIMONY OF C. G. PERRY THEN LEGAL ADVISER TO NEBRASKA BUREAU OF IRRIGATION GIVEN JULY, 1936, RECORD, PAGES 632 TO 636.**

Q. On April 26, 1933, did you attend a conference at Cheyenne, Wyoming, which Mr. Willis also attended?

A. I did.

Q. At whose invitation did you go there?

A. At the request of Mr. R. H. Willis, chief of irrigation, water power and drainage in Nebraska.

Q. And where was this meeting held?

A. It was held in the private office of Mr. James B. True, State Engineer of Wyoming, in the Capitol Building.

Q. Now, would you state what was said and done at that conference?

A. Mr. Willis and I arrived at Mr. True's office - -

* * *

A. (Witness continguing) - - the morning I think it was of April 26, 1933. We met Mr. True and shortly

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thereafter we went into his private office. Before we had a chance to be seated, Mr. True said, "I think I know what you gentlemen are here for; so there will be no beating about the bush. I will lay all the cards on the table. I will tell you frankly that Wyoming will not administer the waters of the North Platte River for the benefit of senior appropriators in Nebraska. Now, if there is anything further to discuss, we can go on with it."

Q. And was anything further said about that subject?

A. Nothing further, except that I asked Mr. True to

state his reasons, and he refused to do so.

Q. Was anything said in that conference on the subject of waste in getting the water to Nebraska?

A. Nothing.

Q. Or on the subject of an equitable apportionment of the waters of the North Platte to the State of Wyoming?

A. Nothing.

Q. Or on the subject of greater beneficial use by keeping the waters in Wyoming?

A. Nothing.

Q. Or on the subject of whether or not Nebraska made the greatest beneficial use of the water?

A. It was not mentioned.

Q. Or the subject relative to wasting of water by Nebraska?

A. There was nothing said about it.

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Q. Now, were you present at a subsequent conference or conversation in the year 1934?

A. I was.

Q. When was that held?

A. I think it was on Sunday, July 29, 1934.

Q. And where was that held?

A. It was held in the home of Mr. Edwin W. Burritt, State Engineer of Wyoming, in the city of Cheyenne.

Q. And who was present?

A. Mr. Burritt; I think there was Mr. Lloyd, Mr. C. F. Gleason, of the Reclamation Service; and I think there was a Mr. Gaenssler, and one other man whose name I do not recall; Mr. R. L. Cochran, Mr. Paul F. Good, Mr. R. H. Willis and myself; and Mr. Greenwood came in later.

Q. Now, would you state what happened at that conference, to the best of your recollection?

A. I think in the beginning it was anticipated that the meeting would be held in Mr. Burritt's office in the Capitol Building, but at his request we went out to his home.

Upon our arrival there, Mr. Willis stated briefly the purpose of the meeting, to the effect that Nebraska was making the request or demand upon the State of Wyoming to close down junior canals in Wyoming on the North Platte River for the benefit of senior appropriators in Nebraska.

After Mr. Willis had finished, Mr. Cochran talked briefly on the same subject; and Mr. Burritt then said, while he recognized - - while Wyoming recog-

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nized the law on the doctrine of priority, and he believed in it, yet there was no law that he knew of in Wyoming that would permit or authorize him to close down any canal in Wyoming for the benefit of Nebraska appropriators; and, further, that they would not be closed down as long as there was any demand made upon the water by Wyoming appropriators, regardless of their priority; and that Wyoming would not recognize any priority in Nebraska without a compact or an order of the United States Supreme Court.

At this point Mr. Good, the then Attorney General of Nebraska, arose and started to discuss the legal features of the situation; and Mr. Burritt said, "Well, the Nebraska delegates have legal representatives here, and I think that I should be represented"; and he stated that Mr. Greenwood - - I be-

lieve the former Attorney General of Wyoming - - lived only a few doors away. So he went to the 'phone and called Mr. Greenwood over; and upon Mr. Greenwood's arrival, Mr. Burritt asked him if there was any law in Wyming that would permit him to close Wyoming appropriators for the benefit of senior appropriators in Nebraska, and Mr. Greenwood said no, not that he knew of.

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Q. Did Mr. Cochran say anything further?

A. Mr. Cochran made reference to a conference that had been held in Washington some months prior, I believe in the Fall before, of '33, at which time Governor Miller, and I believe Senator O'Mahoney, and I think Mr. Wilkerson of Casper, were present, at which time he stated that Wyoming had promised, or that its officials had promised that if Nebraska would withdraw any objections that they might have to the Casper-Alcova project, that in the future they would see to it that the Wyoming officials would administer the streams so that Nebraska senior appropriators would be recognized.

Q. What further did Mr. Cochran say, - anything further about that understanding?

A. He said had Nebraska realized there would be a change in Wyoming's position, that the stand of Nebraska might have been different, and he said in his opinion it was a breach of faith on the part of Wyoming.

**EXTRACT FROM TESTIMONY OF M. E. BALL GIVEN IN JULY, 1941, RECORD, PAGES 25966 TO 25968.**

Q. Mr. Ball, with reference to your trips, did you ever inspect the outlet works of Big Creek Reservoir?

A. Yes, I have.

Q. That is the body of water which is also known as Big Creek Lake?

A. Yes.

Q. In what part of the North Park area is it located?

A. It is in the northwest portion of the Park.

Q. What relation does it have to the stream known as Big Creek?

A. It is near the headwaters of Big Creek. There are tributaries in the high mountains which contribute to the supply of Big Creek, but it is located very near the headwaters of Big Creek.

Q. Is there any storage space in addition to the natural water naturally contained in the natural lake?

A. Yes sir.

Q. Explain about that, will you, please?

A. At the outlet of the reservoir there is a Taintor gate which regulates the storage in the lake, and with

Page 25967:

the gate closed the water level in the lake can be raised.

Q. Is the bottom of the Taintor gate at the normal level, - or normal high-water level of the lake?

A. I assume that it is. It is my memory that it is of concrete construction, and that there would not be any possible way of drawing water out of the lake below the bottom of the outlet.

Q. At least, the normal water level, or high-water level, would have to be at least as high as the bottom of that Taintor gate?

A. As the bottom of the outlet, yes.

Q. What storage depth is made available by the existing artificial construction there?

A. I would like to refer to my diary on that.

Q. Can you state the date when you made the observation?

A. I made the observation on August 22, and I will just read from the diary.

THE MASTER: What year?

A. 1939. "August 22, 1939. To Big creek lake. Only natural flow coming out of Big creek lake. Taintor gate closed. Independence ditch diverting practically all flow of creek. Diversion by ditch 4.24 second feet in Parshall flume. Gauge height, 0.54. Storage depth in Big creek available for Independence ditch 2.95 feet, measured at the Taintor gate." I will continue to read: "Gate closed. Plus or minus 5 second feet flowing over the rim of lake west of

Page 25968:

gate. Natural flow."

Q. Does that 2.95 represent the amount by which the water level in the lake can be raised by closing the headgate, or the Taintor gate?

A. Yes sir. Water was flowing around the gate at the time we were at Big Creek Lake, when these measurements were made.

Q. That is, the gate was closed?

A. The gate was closed.

Q. Referring to Colorado Exhibit 37, can you give the approximate area of Big Creek Lake?

A. Big Creek Lake would appear from Colorado Exhibit 37 to have a surface area of about a half section, or, roughly, 320 acres.

Q. The height of approximately three feet that could be added by the closing of the Taintor gate would give how many acre-feet of water that could be stored and released?

A. Roughly, between 900 and 1000 acre-feet.

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**EXTRACT FROM THE TESTIMONY OF RALPH I. MEEKER GIVEN JULY, 1941, RECORD, PAGES 26123 TO 26126.**

Q. (By Mr. Good) Mr. Meeker, did you in any of your trips up to the North Park area inspect the outlet works of the Big Creek Reservoir?

A. I did.

Q. Would you state in general where the Big Creek Reservoir is located?

A. It is located on Big Creek a short distance above the Colorado line, in the northwest portion of the North Park, at the outlet of the Big Creek Lake.

Q. Just what is the relationship of the Big Creek Reservoir to Big Creek Lake?

A. It is a channel reservoir, an enlargement of the natural lake.

Q. And what is the reservoir; is it in the nature of an addition to the possible water that could be held back in Big Creek Lake?

A. Well, slightly so; but primarily a draw-down on the reservoir. There was an old crib structure, rock and crib structure, in the rim of the lake north of the present outlet works, showing that there had been a slight increase in the storage depth over natural conditions.

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Q. As I understand it, in the Big Horn Land & Cattle Company case versus the United States, which was brought out in connection with one of the earlier hearings when Colorado was producing testimony in connection with the Big Creek Lake, the storage is the amount above the natural level of the lake;

isn't that correct?

A. Well, I don't recall all of that data; I wouldn't undertake that.

Q. At any rate, the way the matter is constructed, or the way the works there are constructed, what amount of water is physically capable of being released? That is to say, only that which is above the lower level of the outlet works?

A. Yes. The floor of the outlet gate is 5 feet high, with a Taintor gate, and the rim of the lake is 2 feet lower than that, so that the storage depth is very close to 3 feet.

Q. Now, did you make an inspection of the outlet works and make a determination in connection with that?

A. Oh, yes.

Q. When did you inspect it?

A. On the 23rd of August, 1939.

Q. Would you state what you found in connection with the actual construction of the outlet works?

A. Well, there were 2.95 feet of controllable water in the lake, with about 5 second-feet overflowing through this low point in the rim where the old rock and log structure exists. The headgate was

Page 26125:

closed.

Q. And was all the water impounded that could be impounded at that time?

A. Yes.

Q. And what was the height of that water above the floor of the outlet gate?

A. As I just testified, 2.95 feet in depth.

Q. Would you describe the Taintor gate that is there for the control of the water?

A. Well, the outlet structure is new. It is of concrete, probably not over 3 or 4 years old, and the Taintor gate is a segment of a central - r or of a cylinder, controlled from an axle on the outside. The curved face of the gate is against the water, and the gate is raised from the outside and revolves on this axle - - steel axle.

Q. Can you state what is the area of the Big Creek Lake?

A. It is approximately 320 acres.

Q. And can you compute the approximate capacity of storage there under the conditions as you found them on August 23, 1939?

A. Well, 3 feet in depth times 320 acres is 960 acre-feet, so I would say, offhand, in a round figure, that the controllable water is approximately 1,000 acre-feet.

Q. Referring to page 17 of Colorado Exhibit 35, what is the decree amount and date for the Big Creek Reservoir?

A. 300,564,000 cubic feet. I will transpose that into acre-feet. Transposing into acre-feet gives 6,913

Page 26126:

acre-feet.

Q. What is the amount of the decreed capacity in excess of the present capacity?

A. 5,900 acre-feet.

Q. What relation does the Independence ditch have to the Big Creek Reservoir supply?

A. It is an outlet ditch from the Big Creek Reservoir that carries water around a mountainside and discharges it into Lake Creek, a tributary of the North Platte River; a transmountain ditch, for the reason

that Big Creek enters the North Platte River at a considerable distance below the Colorado-Wyoming line.

Q. And is that the only means by which Big Creek Lake reservoir water can be used in the State of Colorado, through the Independence ditch?

A. Well, it is the only means whereby it can be used in North Park.

Q. That is what I mean, in Colorado?

A. Yes.

Q. And the water is carried down Lake Creek for use on a ranch down there?

A. Yes.

Q. What ranch, do you recall?

A. Well, it is called Boettcher ranch, or otherwise the Big Horn Cattle Company, I believe.

**Engineers' Stipulation, Pages 1-7**

## NORTH PLATTE RIVER BASIN

**Items Agreed Upon by Engineers**

| | |
|---|---|
| R. I. Meeker | Nebraska |
| E. K. Nelson | Wyoming |
| C. L. Patterson | Colorado |
| J. A. Keimig | The United States |

**Engineers' Stipulation—May, 1942**

### DESCRIPTIVE

1. *Drainage Areas:*
   (a) Above Principal Stations (Colo., Wyo., Nebr.) — Colo. Exh. 70
   (b) Jackson County, Colorado (details) — Colo. Exh. 9

2. *General Topography:*
   (a) North Platte Basin in Colo., Wyo., and Nebr. — Colo. Exh. 71
   (b) Details Jackson County, Colorado — Colo. Exh. 6

3. *River Profile, Gradients and Distances:* Colo. Exh. 72

### CLIMATIC CONDITIONS

General averages for period 1900-1938 adopted without prejudice to records at other stations and for other years.

4. *Annual Precipitation:*
   (a) General Averages per Map and Table — Colo. Exh. 80
   (b) Details—U. S. Weather Bureau Records
      (1) Jackson Co., Colo. Stations — Colo. Exh. 8
      (2) Stations in Wyoming — Colo. Exh. 73

(3) Stations in Western Nebr. Colo. Exh. 74
(4) Stations in Central Nebr. Colo. Exh. 75
(5) South Platte Stations (Colo., Wyo., Nebr.) Colo. Exh. 76

5. *Annual Temperatures:*
(a) General Averages per Map and Table Colo. Exh. 81
(b) Details—Stations Colo., Wyo. and Nebr. Colo. Exh. 77

6. *Evaporation Data:*
(a) Stations in Colo., Wyo. and Nebr. Colo. Exh. 78

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7. *Frost Free Periods:*
(a) General Averages per Map and Table Colo. Exh. 83
(b) Details—Stations in Colo., Wyo. and Nebr. Colo. Exh. 82

8. *Seasonal Precipitation:*
(a) General Averages per Map and Table Colo. Exh. 85
(b) Summary—Stations in Colo., Wyo. and Nebr. Colo. Exh. 84

9. *Seasonal Temperatures:*
(a) General Averages per Map and Table Colo. Exh. 87
(b) Summary—Stations in Colo., Wyo. and Nebr. Colo. Exh. 86

STREAM FLOWS

Data agreed upon for water supply study without prejudice to records at other stations or for

other periods. Values for water-years October 1 to September 30. Maximum, Minimum and average values are for 37-year period, 1904-1940, unless otherwise noted. Monthly and Annual values per attached tabulations, one for each principal station.

10. *North Platte River at Northgate, Colorado:*
    (a) Maximum 714,000 A. F. 1909
    (b) Minimum 89,000 A. F. 1934
    (c) Average 377,000 A. F. 1904-1940
    (d) Monthly Values per Colo. Exh. 10 (1904-39); Nebr. Exh. 602 (1940)

11. *North Platte River at Saratoga, Wyoming:*
    (a) Maximum 1,828,000 A. F. 1909
    (b) Minimum 239,000 A. F. 1934
    (c) Average 927,000 A. F. 1904-1940
    (d) Monthly Values per Colo. Exh. 94 (1904-39); Nebr. Exh. 602 (1940)

12. *North Platte River at Pathfinder Reservoir:*
    (a) Maximum 2,399,000 A. F. 1917
    (b) Minimum 382,000 A. F. 1934
    (c) Average 1,316,000 A. F. 1904-1940
    (d) Monthly Values per Nebr. Exh. 6 for 1904-1935 with corrections, add 60,000 A. F. in April, 1919; and Wyo. Exh. 153 for 1936-1940.
    (e) Note: Includes evaporation loss at Seminoe Reservoir for 1939-1940.

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13. *North Platte River below Pathfinder Reservoir:*
    (a) Maximum 2,231,000 A. F. 1909
    (b) Minimum 486,000 A. F. 1934

(c) Average 1,272,000 A. F. 1904-1940

(d) Monthly Values per Nebr. Exh. 6 (1904-1908); Nebr. Exh. 7 (1909-1935); Nebr. Exh. 300 (1936); and Nebr. Exh. 602 at Alcova (1937-1940).

(e) Pathfinder Reservoir operations commenced in 1909.

(f) Indicated average yearly evaporation loss for 1904-1940 of 44,000 A. F. (1,316,000 A. F. inflow minus 1,272,000 A. F. outflow) would be reduced to about 43,000 A. F. per year taking into account the carryover storage of 34,300 A. F. (all three reservoirs) as of September 30, 1940.

(g) The indicated average yearly evaporation losses are not representative of future average conditions. With Seminoe, Pathfinder and Alcova Reservoirs functioning, evaporation losses could average from 66,000 to 86,000 A. F. yearly, depending upon downstream releases.

14. *North Platte River at Guernsey Reservoir:*
(Reservoir Inflow)

(a) Maximum 2,575,000 A. F. 1917

(b) Minimum 597,000 A. F. 1934

(c) Average 1,561,000 A. F. 1904-1940

(d) Yearly Values per Wyoming Exh. 173, as modified by evaporation correction 4,000 A. F. per year, 1928-1939 inclusive.

(e) Unrecorded Values Items 14 and 15 for years 1904-1909 supplied by averaging estimates per Colo. Exh. 92 and Nebr. Exh. 8.

15. *North Platte River above Whalen:*

(a) Maximum 2,575,000 A. F. 1917

(b) Minimum 603,000 A. F. 1934
(c) Average 1,559,000 A. F. 1904-1940
(d) Monthly Values per Nebr. Exh. 8 (1910-1935); Nebr. Exh. 300 (1936); Nebr. Exh. 582 (1937); Nebr. Exh. 585 (1938); and Nebr. Exh. 602 (1939-1940).
(e) Unrecorded Values Items 14 and 15 for years 1904-1909 supplied by averaging estimates per Colo. Exh. 92 and Nebr. Exh. 8.
(f) Guernsey Reservoir operation commenced 1928.

16. *North Platte River at Wyoming-Nebraska Line:*
(a) Published Data per U. S. Exh. 117 for May, 1929, to end of 1938; and Nebr. Exh. 602 for 1939 and 1940.

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17. *North Platte River at Bridgeport, Nebraska:*
(1915-1940)

(a) Maximum 2,727,000 A. F. 1917
(b) Minimum 526,000 A. F. 1936
(c) Average 1,372,000 A. F. 1915-1940
(d) Monthly quantities recorded by U. S. Geological Survey to control (see Nebr. Exh. 14 and Colo. Exh. 91); unrecorded values are averages of monthly estimates per Colo. Exh. 91 and Nebr. Exh. 14. (See also U. S. Exh. 118 and Nebr. Exh. 602.)

18. *North Platte River at North Platte, Nebraska:*
(a) Period 1904-1940
(1) Maximum 3,481,000 A. F. 1917
(2) Minimum 710,000 A. F. 1911
(3) Average 1,857,000 A. F. 1904-1940

(b) Period 1915-1940

| | | | |
|---|---|---|---|
| (1) Maximum | 3,481,000 | A. F. | 1917 |
| (2) Minimum | 755,000 | A. F. | 1940 |
| (3) Average | 1,820,000 | A. F. | 1915-1940 |

(c) Values 1936-1940 include Sutherland Canal Diversions.

(d) Records of U. S. Geological Survey to govern (see Nebr. Exh. 18-19 and Colo. Exh. 90); unrecorded values are averages of monthly estimates from Nebr. Exh. 18-19 and Colo. Exh. 90.

19. *Other Stations on North Platte River:*

(a) Records for various periods at stations in Wyoming and Nebraska per Colo. Exh. 96; U. S. Exh. 105.

20. *Tributaries of North Platte River:*

(a) In Colorado: Colo. Exh. 11-25

(b) Big Creek and Encampment River Colo. Exh. 32-33

(c) Laramie River at Ft. Laramie Wyo. (1915-1940)

| | | | |
|---|---|---|---|
| (1) Maximum | 397,000 | A. F. | 1917 |
| (2) Minimum | 36,000 | A. F. | 1934 |
| (3) Average | 132,000 | A. F. | 1915-1940 |

(4) Monthly Values per U. S. Exh. 125 (1915-1938) and Nebr. Exh. 603 (1939-1940).

(5) Historical averages will decline in a similar future climatic cycle by reason of upstream reservoir construction during historical period.

(d) Misc. Tributaries in Wyoming and Nebraska

(1) Recorded Data per Colo. Exh. 97 to year 1938.

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21. *South Platte River at North Platte, Nebraska:*
    (a) Records (1914-1940) per Colo. Exh. 132 (1914-1939); Wyo. Exh. 168 (1940).

22. *Main Platte River in Nebraska:*
    Descriptive:
    (a) Drainage Areas and Distances per Colo. Exh. 131.
    (b) Stream Flow Records
        (1) Main River Stations—Colo. Exh. 133-145; Nebr. Exh. 602; U. S. Exh. 105.
        (2) Tributary Stations—Colo. Exh. 146-154.

23. *Trans-Mountain Diversions:*
    (a) From Jackson County, Colorado — Colo. Exh. 43- 44
    (b) From Laramie River — Colo. Exh. 120-126

## RESERVOIRS

The following list of reservoirs and groups of reservoirs was compiled to aid in water supply and stream depletion studies contemplated by the engineers, but which were not undertaken or completed by them. The list does not purport to include all reservoirs, nor does the information concerning capacities, areas, dates of operation and related matters necessarily conform to the permitted or decreed items.

24. *Miscellaneous Reservoirs—Jackson County Colo.:*
    (a) Approximate aggregate capacities 12,000 A. F.

25. *Miscellaneous Reservoirs above Pathfinder in Wyo.:*
    (a) Aggregate Capacities (transcript, pages 27, 254)

Exclusive of reservoirs in Dutton Creek Basin 18,000 A. F.

26. *Seminoe Reservoir:* (on North Platte River)
(a) H. W. L.
Elev. 6,357 Ft. Capacity 1,026,000 A. F.
(b) Dead Storage
below Elev. 6,200 Ft. 2,000 A. F.

(c) Available 157 Ft. 1,024,000 A. F.
(d) Details of Areas and Capacities per Wyo. Exh. 169.
(e) Operation Commenced April, 1939 (Nebr. Exh. 602).

27. *Pathfinder Reservoir:* (on North Platte River)
(a) H. W. L.
Elev. 5,852 Ft. Capacity 1,045,000 A. F.
(b) Outlet
Elev. 5,700 Ft. 0 A. F.

(c) Available 152 Ft. 1,045,000 A. F.
(d) Details of areas and capacities per Wyo. Exh. 169.
(e) Operation commenced April, 1909 (Colo. Exh. 99).
(f) Storage Operations—graph, Colo. Exh. 100.
(g) Contents—Tables, Colo. Exh. 99; Nebr. Exh. 602.

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28. *Alcova Reservoir:* (on North Platte River)
(a) H. W. L.
Elev. 5,500 Ft. Capacity 190,000 A. F

(b) Sill-Casper Canal
Elev. 5,487 Ft. Capacity 160,000 A. F.
(c) Outlet Elevation
5,320 Ft. Capacity 0
(d) Details of areas and capacities, Wyo. Exh. 169.
(e) Operation commenced Feb., 1938 (Nebr. Exh. 602).

29. *La Prele Reservoir:* (on La Prele Creek)
(a) Capacity (Nebr. Exh. 31) 20,000 A. F.
(b) Operation commenced 1910 (transcript, page 18,656).

30. *Guernsey Reservoir:* (on North Platte River)
(a) H. W. L.
Elev. 4,420 Ft. Capacity 52,000 A. F.
(b) Outlet Sill
Elev. 4,370 Ft. Capacity 2,000 A. F.
(c) Available 50 Ft. Capacity 50,000 A. F.
(d) Power Outlet Sill
Elev. 4,360 Ft. 0
(e) Details areas and capacities—U. S. Exh. 242, 246.
(f) Storage Contents—Colo. Exh. 99.
(g) Operation commenced December, 1927.

31. *Reservoirs in Laramie River Basin in Wyoming:*
(a) Sodergreen Reservoir; capacity 1,000 A. F.; Wyo. Exh. 56 (transcript, page 18,555).
(b) Lake Hattie (Laramie River); capacity 68,500 A. F.; Wyo. Exh. 56; commenced 1912.
(c) Oasis Reservoir; capacity 781 A. F.; Wyo. Exh. 61.
(d) James Lake (Little Laramie); capacity 41,000 A. F.; Wyo. Exh. 61; commenced 1912.

(e) Wyo. Devel. Co. Res. No. 1 (Wheatland No. 1) Sybille Cr. and Laramie River; original capacity 5,360 A. F.; completed May, 1897; enlargement to total capacity 7,136 A. F.; begun about 1938 (trans., p. 19,102); was still incompleted but practically completed on Nov. 14, 1939 (trans. p. 18,990).

(f) Wyo. Devel. Co. Res. No. 2 (Wheatland No. 2) Laramie River; capacity 99,000 A. F.; completed 1901 (trans. p. 19,018); enlargement 91,000 A. F.; approximate date of completion 1942.

(g) North Laramie Project (North Laramie River)
(1) Reservoir No. 1—Capacity 1,970 A. F.
(2) Reservoir No. 2—Capacity 1,300 A. F.
(3) Reservoir No 3—Capacity 3,150 A. F.
(4) See Wyo. Exh. 79; completed 1912.

32. *Off-Channel Reservoirs—Pathfinder Irrigation District in Nebr.:*

Data from U. S. Exh. 132

(a) Alice Reservoir, capacity 12,000 A. F., completed 1912.

(b) Winters Cr. Res., capacity 2,000 A. F., completed 1912.

(c) Minatare Res., capacity 60,000 A. F., completed 1915.

**Page 7 of Engineers' Stipulation.**

33. *Reservoirs in Horse Creek Basin in Wyo.:*

(a) Hawk Springs—Total Capacity 19,443 A. F., Wyo. Exh. 69; operation to 15,700 A. F. commenced 1921; enlarged 1925.

(b) Sinnard Res.—Capacity 1,540 A. F.; completed

1935, Wyo. Exh. 69.

(c) Misc. Res.—approximate capacity 10,000 A. F., Nebr. Exh. 91.

34. *Crescent Lake Reservoir on Blue Creek in Nebraska:*

(a) Capacity—filing for 7,000 A. F. dated Jan. 23, 1920.

35. *Kingsley Reservoir:* (on North Platte River)

(a) Capacity (as reported) 2,000,000 A. F.

(b) Surface Area (H. W. L.) 32,000 acres

(c) Operation commenced Feb., 1941.

(d) References—U. S. Exh. 182; Nebr. Exh. 640 (trans., pp. 25,500 and 25,535).

36. *Sutherland Reservoir:*

(Off-Channel; Sutherland Supply Canal)

(a) Capacity (constructed) 178,000 A. F. U. S. Exh. 182

(b) Capacity—total 180,000 A. F.

(c) Less unavailable 5,000 A. F.

(d) Available 175,000 A. F. (trans. p. 7,433)

(e) Operation commenced December, 1935 (trans., p. 7,443).

37. *Sutherland Regulating Reservoir:*

(a) Capacity—total 21,200 A. F. (trans., p. 7,436)

(b) Less unavailable 5,400 A. F.

(c) Available 15,800 A. F.

(d) Operation commenced June, 1936 (trans., p. 7,443).

38. *Jeffrey Canyon Reservoir:*
    (a) Capacity—total 15,000 A. F. U. S. Exh. 182
    (b) Unavailable 3,600 A. F.
    (c) Available 11,400 A. F.
    (trans., p. 25,535)
    (d) Operation commenced year 1941.

39. *Johnson Canyon Reservoir:*
    (a) Capacity—total 55,000 A. F.
    (trans., p. 25,535)
    (b) Unavailable 5,500 A. F.
    (c) Available 49,500 A. F.
    (d) Operation commenced year 1941.

40. *Minor Reservoirs* on tributaries below Alcova Reservoir in Wyoming and Nebraska not itemized nor individually evaluated.

STATE OF NEBRASKA
BUREAU OF IRRIGATION
R. H. WILLIS, CHIEF

Sheet No. 25 Nebraska Exhibit 11
1931-32

# DAILY DISCHARGE LARAMIE RIVER NEAR FORT LARAMIE, WYOMING

From Page 217, Water Supply Paper No. 731 U. S. Geological Survey
Values in Second-feet

R. I. Meeker, Consulting Engineer

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 40 | 110 | 110 | 128 | 130 | 160 | 131 | 280 | 94 | 43 | 14 | 15 |
| 2 | 43 | 110 | 108 | 130 | 128 | 160 | 131 | 280 | 73 | 43 | 14 | 16 |
| 3 | 45 | 110 | 108 | 130 | 128 | 150 | 146 | 155 | 73 | 43 | 14 | 15 |
| 4 | 39 | 115 | 110 | 145 | 130 | 90 | 581 | 203 | 63 | 54 | 14 | 16 |
| 5 | 39 | 116 | 110 | 122 | 128 | 84 | 650 | 327 | 63 | 38 | 14 | 16 |
| 6 | 40 | 104 | 110 | 120 | 138 | 86 | 480 | 380 | 54 | 73 | 14 | 16 |
| 7 | 40 | 98 | 110 | 115 | 138 | 84 | 459 | 370 | 45 | 36 | 14 | 16 |
| 8 | 45 | 97 | 110 | 128 | 140 | 74 | 427 | 380 | 36 | 36 | 14 | 16 |
| 9 | 52 | 103 | 110 | 130 | 165 | 74 | 326 | 334 | 30 | 44 | 14 | 15 |
| 10 | 69 | 109 | 110 | 132 | 180 | 96 | 265 | 290 | 30 | 45 | 13 | 15 |
| 11 | 69 | 109 | 110 | 135 | 195 | 114 | 240 | 290 | 25 | 45 | 13 | 16 |
| 12 | 71 | 109 | 108 | 130 | 145 | 105 | 221 | 279 | 23 | 44 | 13 | 17 |
| 13 | 82 | 109 | 86 | 106 | 150 | 146 | 176 | 260 | 20 | 26 | 13 | 17 |
| 14 | 77 | 109 | 90 | 84 | 130 | 148 | 144 | 355 | 24 | 24 | 17 | 17 |
| 15 | 71 | 108 | 115 | 100 | 130 | 170 | 144 | 218 | 24 | 24 | 13 | 16 |
| 16 | 68 | 103 | 115 | 120 | 130 | 175 | 157 | 224 | 15 | 22 | 13 | 16 |
| 17 | 58 | 103 | 120 | 128 | 150 | 160 | 172 | 219 | 15 | 20 | 13 | 16 |

STATE OF NEBRASKA
BUREAU OF IRRIGATION
R. H. WILLIS, CHIEF

Sheet No. 25 Nebraska Exhibit 11—(Continued)
1931-32

## DAILY DISCHARGE LARAMIE RIVER NEAR FORT LARAMIE, WYOMING

From Page 217, Water Supply Paper No. 731 U. S. Geological Survey
Values in Second-feet

R. I. Meeker, Consulting Engineer

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 83 | 103 | 115 | 128 | 145 | 160 | 184 | 183 | 17 | 20 | 13 | 16 |
| 19 | 74 | 103 | 135 | 130 | 150 | 160 | 186 | 160 | 95 | 20 | 13 | 16 |
| 20 | 78 | 103 | 140 | 142 | 160 | 185 | 174 | 140 | 74 | 15 | 12 | 17 |
| 21 | 95 | 83 | 140 | 145 | 180 | 185 | 154 | 140 | 65 | 15 | 12 | 16 |
| 22 | 95 | 72 | 140 | 130 | 190 | 185 | 133 | 165 | 53 | 15 | 13 | 17 |
| 23 | 89 | 68 | 135 | 135 | 195 | 185 | 139 | 147 | 39 | 15 | 13 | 17 |
| 24 | 94 | 88 | 150 | 132 | 200 | 185 | 158 | 130 | 36 | 15 | 13 | 17 |
| 25 | 95 | 86 | 145 | 135 | 155 | 185 | 198 | 94 | 35 | 15 | 13 | 20 |
| 26 | 95 | 97 | 160 | 135 | 155 | 185 | 150 | 84 | 37 | 15 | 13 | 21 |
| 27 | 101 | 98 | 175 | 140 | 140 | 185 | 198 | 74 | 36 | 15 | 13 | 22 |
| 28 | 95 | 98 | 130 | 125 | 150 | 160 | 235 | 74 | 39 | 15 | 13 | 22 |
| 29 | 120 | 98 | 140 | 110 | 150 | 160 | 209 | 76 | 61 | 15 | 15 | 25 |
| 30 | 125 | 110 | 110 | 110 | | 160 | 197 | 105 | 54 | 14 | 15 | 27 |
| 31 | 114 | | 110 | 110 | | 135 | | 130 | | 14 | 14 | |

NOTE:—During the winter water is diverted 4 miles upstream for use of the Lingle power plant; discharge is corrected for this diversion. Flow regulated by Wheatland Reservoir having a capacity of 110,000 acre-feet. Complete records furnished by Bureau of Reclamation.

STATE OF NEBRASKA
BUREAU OF IRRIGATION
R. H. WILLIS, CHIEF

Sheet No. 27 Nebraska Exhibit 11
1934

# DAILY DISCHARGE LARAMIE RIVER AT FORT LARAMIE, WYOMING

From U. S. Bureau of Reclamation Blue Print
Values in Second-feet

R. I. Meeker, Consulting Engineer

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25 | 59 | 59 | 140 | 96 | 106 | 102 | 38 | 6 | 8 | 5 | 3 |
| 2 | 24 | 59 | 64 | 98 | 96 | 109 | 102 | 38 | 4 | 8 | 7 | 4 |
| 3 | 26 | 64 | 68 | 99 | 86 | 100 | 100 | 43 | 4 | 8 | 6 | 4 |
| 4 | 27 | 64 | 69 | 90 | 86 | 100 | 100 | 30 | 6 | 14 | 5 | 4 |
| 5 | 29 | 40 | 63 | 95 | 86 | 100 | 100 | 30 | 4 | 14 | 6 | 4 |
| 6 | 30 | 76 | 131 | 90 | 86 | 100 | 115 | 30 | 4 | 14 | 6 | 4 |
| 7 | 31 | 87 | 83 | 69 | 86 | 100 | 115 | 33 | 4 | 11 | 6 | 6 |
| 8 | 35 | 83 | 81 | 70 | 86 | 100 | 102 | 38 | 4 | 11 | 6 | 7 |
| 9 | 38 | 83 | 84 | 105 | 86 | 100 | 102 | 27 | 4 | 11 | 5 | 8 |
| 10 | 40 | 83 | 82 | 108 | 96 | 100 | 102 | 15 | 4 | 11 | 5 | 12 |
| 11 | 40 | 83 | 80 | 96 | 86 | 105 | 100 | 12 | 4 | 8 | 5 | 9 |
| 12 | 39 | 63 | 61 | 108 | 91 | 105 | 97 | 12 | 4 | 7 | 4 | 9 |
| 13 | 37 | 60 | 76 | 108 | 96 | 105 | 97 | 12 | 4 | 7 | 4 | 9 |
| 14 | 32 | 58 | 81 | 115 | 96 | 105 | 97 | 10 | 4 | 8 | 5 | 11 |
| 15 | 34 | 58 | 88 | 108 | 96 | 105 | 97 | 10 | 4 | 8 | 3 | 13 |
| 16 | 34 | 59 | 68 | 104 | 91 | 105 | 97 | 10 | 5 | 8 | 3 | 13 |
| 17 | 34 | 60 | 43 | 104 | 91 | 105 | 97 | 2 | 4 | 6 | 3 | 13 |

STATE OF NEBRASKA
BUREAU OF IRRIGATION
R. H. WILLIS, CHIEF

Sheet No. 27 Nebraska Exhibit 11—(Continued)
1934

## DAILY DISCHARGE LARAMIE RIVER AT FORT LARAMIE, WYOMING

From U. S. Bureau of Reclamation Blue Print
Values in Second-feet

R. I. Meeker, Consulting Engineer

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 37 | 60 | 58 | 106 | 79 | 105 | 68 | 6 | 22 | 6 | 3 | 12 |
| 19 | 40 | 60 | 111 | 106 | 79 | 105 | 64 | 6 | 14 | 8 | 3 | 12 |
| 20 | 43 | 61 | 96 | 104 | 79 | 105 | 60 | 6 | 13 | 6 | 3 | 13 |
| 21 | 55 | 61 | 91 | 104 | 79 | 105 | 55 | 6 | 10 | 5 | 3 | 16 |
| 22 | 74 | 79 | 91 | 104 | 76 | 105 | 54 | 8 | 10 | 6 | 3 | 16 |
| 23 | 79 | 86 | 86 | 104 | 83 | 105 | 50 | 6 | 9 | 7 | 3 | 15 |
| 24 | 86 | 58 | 86 | 114 | 53 | 102 | 45 | 6 | 8 | 7 | 3 | 15 |
| 25 | 72 | 50 | 83 | 114 | 43 | 102 | 40 | 6 | 10 | 6 | 3 | 15 |
| 26 | 70 | 44 | 43 | 104 | 47 | 102 | 40 | 6 | 9 | 6 | 3 | 13 |
| 27 | 70 | 46 | 73 | 116 | 88 | 102 | 40 | 6 | 10 | 7 | 3 | 2 |
| 28 | 70 | 43 | 103 | 116 | 110 | 102 | 50 | 6 | 9 | 14 | 3 | 2 |
| 29 | 58 | 43 | 93 | 106 | | 102 | 38 | 6 | 9 | 10 | 3 | 2 |
| 30 | 53 | 51 | 116 | 106 | | 102 | 38 | 6 | 9 | 7 | 3 | 2 |
| 31 | 58 | | 100 | 106 | | 102 | | 6 | | 6 | 3 | |

NOTE:—During the winter water is diverted 4 miles upstream for use of the Lingle power plant; discharge is corrected for this diversion.

Blank Page

May Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
140 Second-Feet.

MAY 1934

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 2, Nebraska Exhibit 226.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. (a) | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 1020 | 1110 | 140 | 880 | 0 | 0 | 0 | 4 | 666 | 0 | 666 | 852 | | 186 | 186 | 666 | 354 | |
| 2 | 1400 | 1300 | 130 | 1170 | 100 | 10 | 90 | 5 | 891 | 90 | 801 | 513 | 378 | | 0 | 513 | 509 | |
| 3 | 1840 | 1010 | 77 | 933 | 830 | 63 | 767 | 6 | 1533 | 767 | 766 | 470 | 1063 | | 0 | 470 | 307 | |
| 4 | 2390 | 1160 | 68 | 1092 | 1230 | 72 | 1158 | 7 | 1912 | 1158 | 754 | 330 | 1582 | | 0 | 330 | 478 | |
| 5 | 1620 | 1210 | 105 | 1105 | 410 | 35 | 375 | 8 | 1733 | 375 | 1356 | 387 | 1346 | | 0 | 387 | | 113 |
| 6 | 1470 | 1500 | 140 | 1330 | 0 | | 0 | 9 | 1386 | 0 | 1386 | 398 | b 988 | | 0 | 398 | 84 | |
| 7 | 1480 | 1600 | 140 | 1340 | 0 | | 0 | 10 | 1325 | 0 | 1325 | 352 | 973 | | 0 | 352 | 155 | |
| 8 | 1480 | 1510 | 140 | 1340 | 0 | | 0 | 11 | 1305 | 0 | 1305 | 352 | 953 | | 0 | 352 | 175 | |
| 9 | 1480 | 1670 | 140 | 1340 | 0 | | 0 | 12 | 1303 | 0 | 1303 | 381 | 922 | | 0 | 381 | 177 | |
| 10 | 1480 | 1630 | 140 | 1340 | 0 | | 0 | 13 | 1247 | 0 | 1247 | 330 | 917 | | 0 | 330 | 233 | |
| 11 | 1480 | 1820 | 140 | 1340 | 0 | | 0 | 14 | 1275 | 0 | 1275 | 307 | 968 | | 0 | 307 | 205 | |
| 12 | 1480 | 1590 | 140 | 1340 | 0 | | 0 | 15 | 1293 | 0 | 1293 | 335 | 958 | | 0 | 335 | 187 | |
| 13 | 1480 | 1730 | 140 | 1340 | 0 | | 0 | 16 | 1282 | 0 | 1282 | 410 | 872 | | 0 | 410 | 198 | |
| 14 | 1480 | 1910 | 140 | 1340 | 0 | | 0 | 17 | 1351 | 0 | 1351 | 676 | 675 | | 0 | 676 | 129 | |
| 15 | 1000 | 2070 | 140 | 860 | 0 | | 0 | 18 | 1148 | 0 | 1148 | 1103 | 45 | | 0 | 1103 | | 148 |
| 16 | 950 | 1940 | 140 | 810 | 0 | | 0 | 19 | 963 | 0 | 963 | 1799 | | 836 | 836 | 963 | | 13 |
| 17 | 950 | 1700 | 140 | 810 | 0 | | 0 | 20 | 901 | 0 | 901 | 2080 | | 1179 | 1179 | 901 | 49 | |
| 18 | 1470 | 1530 | 140 | 1330 | 0 | | 0 | 21 | 1118 | 0 | 1118 | 2338 | | 1220 | 1220 | 1118 | 352 | |
| 19 | 1950 | 1470 | 106 | 1364 | 480 | 34 | 446 | 22 | 1502 | 446 | 1056 | 2878 | | 1376 | 1822 | 1056 | 448 | |
| 20 | 2360 | 1380 | 82 | 1298 | 980 | 58 | 922 | 23 | 1948 | 922 | 1026 | 3087 | | 1139 | 2061 | 1026 | 412 | |
| 21 | 2930 | 1070 | 51 | 1019 | 1860 | 89 | 1771 | 24 | 2501 | 1771 | 730 | 3564 | | 1063 | 2834 | 730 | 429 | |
| 22 | 3410 | 1230 | 50 | 1180 | 2180 | 90 | 2090 | 25 | 3022 | 2090 | 932 | 4090 | | 1068 | 3158 | 932 | 388 | |
| 23 | 3940 | 1200 | 43 | 1157 | 2740 | 97 | 2643 | 26 | 3441 | 2643 | 798 | 4550 | | 1109 | 3752 | 798 | 490 | |
| 24 | 4310 | 1200 | 39 | 1161 | 3110 | 101 | 3009 | 27 | 4308 | 3009 | 1299 | 4686 | | 378 | 3387 | 1299 | 2 | |
| 25 | 4750 | 1040 | 31 | 1009 | 3710 | 109 | 3601 | 28 | 4235 | 3601 | 634 | 5047 | | 812 | 4413 | 634 | 515 | |
| 26 | 4760 | 1090 | 32 | 1058 | 3670 | 108 | 3562 | 29 | 4338 | 3562 | 776 | 5094 | | 756 | 4318 | 776 | 422 | |
| 27 | 4730 | 1010 | 30 | 980 | 3720 | 110 | 3610 | 30 | 4529 | 3610 | 919 | 5214 | | 685 | 4295 | 919 | 201 | |
| 28 | 5060 | 850 | 24 | 826 | 4180 | 116 | 4064 | 31 | 4860 | 4064 | 796 | 5238 | | 378 | 4442 | 796 | 170 | |
| 29 | 5310 | 970 | 26 | 944 | 4340 | 114 | 4226 | 1 | 4969 | 4226 | 743 | 5166 | | 197 | 4423 | 743 | 341 | |
| 30 | 5460 | 1120 | 29 | 1091 | 4340 | 111 | 4229 | 2 | 5087 | 4229 | 858 | 5047 | 40 | | 4189 | 858 | 373 | |
| 31 | 5430 | 640 | 17 | 623 | 4790 | 123 | 4667 | 3 | 5209 | 4667 | 542 | 4906 | 303 | | 4364 | 542 | 221 | |
| Totals | 80620 | 42260 | 2800 | 34750 | 42670 | 1440 | 41230 | | 72581 | 41230 | 31349 | 71980 | 12983 | 12196 | 50879 | 21101 | 8013 | 274 |
| Acre-feet | 160640 | 84520 | 5560 | 69500 | 85340 | 2880 | 82460 | | 145162 | 82460 | 62698 | 143960 | 25966 | 24392 | 101758 | 42206 | 16026 | 548 |

(a) May 1 and May 6 to 18, inclusive, storage in Pathfinder Reservoir. Use values in Col. 2 for Col. 3.

(b) During the period of May 5-18, 20,500 acre-feet of direct flow were stored in Guernsey Reservoir, and 4780 acre-feet of Pathfinder Reservoir water were restored at Guernsey.

...r Channel Evaporation Charge,
...thfinder Dam to Guernsey Dam,
...Second-Feet.

JUNE 1934

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 3, Nebraska Exhibit 226.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain Path. D.-Guern. D. | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 5660 | 620 | 21 | 599 | 5040 | 175 | 4865 | 4 | 6302 | 4865 | 1437 | 3348 | 2954 | | 1911 | 1437 | | 642 |
| 2 | 5570 | 830 | 29 | 801 | 4740 | 167 | 4573 | 5 | 5283 | 4573 | 710 | 2798 | 2435 | | 2088 | 710 | 287 | |
| 3 | 5580 | 1059 | 37 | 1013 | 4480 | 159 | 4321 | 6 | 5012 | 4321 | 691 | 3384 | 1628 | | 2693 | 691 | 518 | |
| 4 | 5470 | 940 | 34 | 906 | 4530 | 162 | 4368 | 7 | 3501 | 4368 | * 0 | 3420 | 81 | | b 3420 | 0 | 1969 | |
| 5 | 1600 | 850 | 104 | 746 | 750 | 92 | 658 | 8 | 2063 | 658 | * 538 | 3384 | | 1321 | 1979 | 1405 | | 463 |
| 6 | 1520 | 820 | 106 | 714 | 700 | 90 | 610 | 9 | 1869 | 610 | 1259 | 3310 | | 1441 | 2051 | 1259 | | 349 |
| 7 | 2390 | 930 | 76 | 854 | 1460 | 120 | 1349 | 10 | 2318 | 1340 | 978 | 2525 | | 207 | 1547 | 978 | 72 | |
| 8 | 2510 | 510 | 40 | 470 | 2000 | 156 | 1844 | 11 | 2280 | 1844 | 436 | 2093 | 187 | | 1857 | 436 | 230 | |
| 9 | 1650 | 470 | 57 | 413 | 1160 | 139 | 1021 | 12 | 1768 | 1021 | 747 | 2040 | | 272 | 1293 | 747 | | 138 |
| 10 | 960 | 540 | 116 | 430 | 420 | 86 | 334 | 13 | 1358 | 334 | 1024 | 1595 | | 237 | 571 | 1024 | | 298 |
| 11 | 830 | 480 | 113 | 367 | 350 | 83 | 267 | 14 | 1095 | 267 | 828 | 1060 | 35 | | 232 | 828 | | 265 |
| 12 | 830 | 470 | 111 | 359 | 360 | 85 | 275 | 15 | 1072 | 275 | 797 | 931 | 141 | | 134 | 797 | | 242 |
| 13 | 830 | 390 | 92 | 298 | 440 | 104 | 336 | 16 | 1236 | 336 | 900 | 939 | 297 | | 39 | 900 | | 406 |
| 14 | 830 | 340 | 80 | 260 | 490 | 116 | 374 | 17 | 1024 | 374 | 650 | 923 | 101 | | 273 | 650 | | 194 |
| 15 | 830 | 290 | 68 | 222 | 540 | 128 | 412 | 18 | 1084 | 412 | 672 | 675 | 409 | | 3 | 672 | | 254 |
| 16 | 830 | 300 | 71 | 229 | 530 | 125 | 405 | 19 | 989 | 405 | 584 | 596 | 393 | | 12 | 584 | | 159 |
| 17 | 830 | 320 | 76 | 244 | 510 | 120 | 390 | 20 | 960 | 390 | 570 | 577 | 383 | | 7 | 570 | | 130 |
| 18 | 830 | 290 | 68 | 222 | 540 | 28 | 412 | 21 | 928 | 412 | 516 | 570 | 358 | | 54 | 516 | | 98 |
| 19 | 830 | 390 | 92 | 298 | 440 | 104 | 336 | 22 | 920 | 336 | 584 | 577 | 343 | a- 7 | 0 | 577 | | 90 |
| 20 | 830 | 450 | 106 | 344 | 380 | 90 | 290 | 23 | 907 | 290 | 617 | 564 | 343 | a- 53 | 0 | 564 | | 77 |
| 21 | 830 | 290 | 68 | 222 | 540 | 128 | 412 | 24 | 866 | 412 | 454 | 488 | 378 | | 34 | 454 | | 26 |
| 22 | 830 | 260 | 62 | 198 | 570 | 134 | 436 | 25 | 834 | 436 | 398 | 410 | 424 | | 12 | 398 | | 4 |
| 23 | 830 | 210 | 50 | 160 | 620 | 146 | 474 | 26 | 855 | 474 | 381 | 386 | 469 | | 5 | 381 | | 25 |
| 24 | 600 | 220 | 72 | 148 | 380 | 124 | 256 | 27 | 813 | 256 | 557 | 375 | 438 | a-182 | 0 | 375 | | 213 |
| 25 | 530 | 230 | 85 | 145 | 300 | 111 | 189 | 28 | 657 | 189 | 468 | 375 | 282 | a- 93 | 0 | 375 | | 127 |
| 26 | 520 | 190 | 72 | 118 | 330 | 124 | 206 | 29 | 616 | 206 | 410 | 369 | 247 | a- 41 | 0 | 369 | | 96 |
| 27 | 520 | 160 | 60 | 100 | 360 | 136 | 224 | 30 | 551 | 224 | 327 | 369 | 182 | | 42 | 327 | | 31 |
| 28 | 520 | 170 | 64 | 106 | 350 | 132 | 218 | 1 | 544 | 218 | 326 | 393 | * 151 | | 67 | 326 | | 24 |
| 29 | 510 | 210 | 81 | 129 | 300 | 115 | 185 | 2 | 563 | 185 | 378 | 301 | 262 | a- 77 | 0 | 301 | | 53 |
| 30 | 510 | 160 | 61 | 99 | 350 | 135 | 215 | 3 | 524 | 215 | 309 | 352 | 172 | | 43 | 309 | | 14 |
| 31 | | | | | | | | | | | | | | | | | | |
| | 47240 | 13320 | 2106 | 11214 | 33960 | 3714 | 30246 | | 48792 | 30246 | 18546 | 39127 | 13143 | 3478 | 453 20167 | 18960 | 2676 | 4528 |
| | 94880 | 26700 | 4332 | 22423 | 67920 | 7428 | 60492 | | 97584 | 60492 | 27092 | 78254 | 26286 | 6956 | 906 40334 | 37920 | 5352 | 9056 |

* 867 carried over from 7th.

(a) Direct flow stored at Guernsey Reservoir.

(b) 4287 — 867 = 3420.

July Evaporation Charge, Pathfinder Dam to Guernsey Dam, 215 Second-Feet.

JULY 1934

# NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

Sheet 4, Nebraska Exhibit 226.

## SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| Month | | DIRECT FLOW | | | STORED WATER | | | GUERNSEY RESERVOIR INFLOW | | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 510 | 130 | 55 | 75 | 380 | 160 | 220 | 4 | 521 | 220 | 301 | 446 | 75 | | 145 | 301 | | 11 |
| 2 | 510 | 170 | 72 | 98 | 340 | 143 | 197 | 5 | 606 | 197 | 409 | 495 | 111 | | 86 | 409 | | 96 |
| 3 | 510 | 150 | 63 | 87 | 360 | 152 | 208 | 6 | 508 | 208 | 300 | 609 | | 101 | 309 | 300 | 2 | |
| 4 | 510 | 140 | 59 | 81 | 370 | 156 | 214 | 7 | 490 | 214 | 276 | 616 | | 126 | 340 | 276 | 20 | |
| 5 | 500 | 170 | 73 | 97 | 330 | 142 | 188 | 8 | 524 | 188 | 336 | 1300 | | 776 | 964 | 336 | | 24 |
| 6 | 500 | *640 | 215 | 285 | 0 | 0 | 0 | 9 | 519 | 0 | 519 | 2268 | | 1749 | 1749 | 519 | | 19 |
| 7 | 500 | 340 | 146 | 194 | 160 | 69 | 91 | 10 | 508 | 91 | 417 | 2540 | | 2032 | 2123 | 417 | | 8 |
| 8 | 1340 | 240 | 39 | a 201 | 1100 | 176 | 924 | 11 | 438 | aa 438 | 0 | 2495 | | 2057 | 2495 | 0 | 902 | |
| 9 | 2540 | 180 | 15 | 165 | 2360 | 200 | 2160 | 12 | 1561 | 1561 | 0 | 2735 | | 1174 | 2735 | 0 | 979 | |
| 10 | 2540 | 130 | 11 | 119 | 2410 | 204 | 2206 | 13 | 1972 | 1972 | 0 | 2990 | | 1018 | 2990 | 0 | 568 | |
| 11 | 2510 | 100 | 9 | 91 | 2410 | 206 | 2204 | 14 | 2070 | 2070 | 0 | 2942 | | 872 | 2942 | 0 | 440 | |
| 12 | 2510 | 180 | 15 | 165 | 2330 | 200 | 2130 | 15 | 2001 | 2001 | 0 | 2878 | | 877 | 2878 | 0 | 509 | |
| 13 | 2970 | 60 | 4 | 56 | 2910 | 211 | 2699 | 16 | 2544 | 2544 | 0 | 2660 | | 116 | 2660 | 0 | 426 | |
| 14 | 2980 | 90 | 6 | 84 | 2890 | 209 | 2681 | 17 | 2558 | 2558 | 0 | 2004 | 554 | | 2004 | 0 | 422 | |
| 15 | 2550 | 90 | 8 | 82 | 2460 | 207 | 2253 | 18 | 2229 | 2229 | 0 | 1669 | 560 | | 1669 | 0 | 321 | |
| 16 | 2470 | 90 | 8 | 82 | 2380 | 207 | 2173 | 19 | 2169 | 2169 | 0 | 1035 | 1134 | | 1035 | 0 | 301 | |
| 17 | 2590 | 100 | 8 | a 92 | 2490 | 207 | 2283 | 20 | 2271 | aa 2271 | 0 | 1011 | 1260 | | 1011 | 0 | 319 | |
| 18 | 1090 | 90 | 18 | 72 | 1000 | 197 | 803 | 21 | 1385 | 803 | 582 | 1395 | | 10 | 813 | 582 | | 295 |
| 19 | 990 | 30 | 6 | 24 | 960 | 209 | 751 | 22 | 1092 | 751 | 341 | 1405 | | 313 | 1064 | 341 | | 102 |
| 20 | 990 | 30 | 6 | 24 | 960 | 209 | 751 | 23 | 894 | 751 | 143 | 1766 | | 872 | 1623 | 143 | 96 | |
| 21 | 1930 | 40 | 5 | b 35 | 1890 | 210 | 1680 | 24 | 1295 | bb 1295 | 0 | 1920 | | 625 | 1920 | 0 | 635 | |
| 22 | 2380 | 40 | 4 | b 36 | 2340 | 211 | 2129 | 25 | 1932 | bb 1932 | 0 | 1932 | 0 | 0 | 1932 | 0 | 448 | |
| 23 | 2510 | 80 | 7 | 73 | 2430 | 208 | 2222 | 26 | 2321 | 2222 | 99 | 1711 | 610 | | 1612 | 99 | 189 | |
| 24 | 2480 | 110 | 9 | 101 | 2370 | 206 | 2164 | 27 | 3657 | 2164 | 1493 | 1832 | 1825 | | 339 | 1493 | | 1177 |
| 25 | 890 | 60 | 14 | 46 | 830 | 201 | 629 | 28 | 1799 | 629 | 1170 | 2480 | | 681 | 1310 | 1170 | | 909 |
| 26 | 1360 | 160 | 25 | 135 | 1200 | 190 | 1010 | 29 | 1283 | 1010 | 273 | 1711 | | 428 | 1438 | 273 | 77 | |
| 27 | 2490 | 550 | 48 | 502 | 1940 | 167 | 1773 | 30 | 2346 | 1773 | 573 | 1605 | 741 | | 1032 | 573 | 144 | |
| 28 | 2500 | 140 | 12 | 128 | 2360 | 203 | 2157 | 31 | 2238 | 2157 | 81 | 1744 | 494 | | 1663 | 81 | 262 | |
| 29 | 2570 | 240 | 20 | 220 | 2330 | 195 | 2135 | 1 | 2250 | 2135 | 115 | 2144 | 106 | | 2029 | 115 | 320 | |
| 30 | 2510 | 190 | 16 | c 174 | 2320 | 199 | 2121 | 2 | 2117 | cc 2117 | 0 | 2510 | | 393 | 2510 | 0 | 393 | |
| 31 | 2520 | 50 | 4 | c 46 | 2470 | 211 | 2259 | 3 | 2176 | cc 2176 | 0 | 2766 | | 590 | 2766 | 0 | 344 | |
| Totals | 55730 | 4810 | 1000 | 3670 | 51080 | 5665 | 45415 | | 50274 | 42846 | 7428 | 57614 | 7470 | 14810 | 50186 | 7428 | 8117 | 2641 |
| Acre-feet | 111460 | 9620 | 2000 | 7340 | 102160 | 11330 | 90830 | | 100548 | 85692 | 14856 | 115228 | 14940 | 29620 | 100372 | 14856 | 16234 | 5282 |

* 140 Sec.-Ft. Storage.

(a) Direct flow loss of 2274 A.-Ft. July 8-17. See Col. 12. Due to reservoir run of 2000 sec.-ft. and "out-of-priority diversions."

(b) Direct flow loss of 142 A.-Ft. July 21-22.

(c) Direct flow loss of 440 A.-Ft. July 30-31.

(aa) Reservoir water loss of 3800 A.-Ft. July 11-20, due to channel storage from reservoir run and "out-of-priority diversions."

(bb) Reservoir water loss of 1164 A.-Ft. July 24-25.

(cc) Reservoir water loss of 174 A.-Ft. Aug. 2-3.

August Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
187 Second-Feet.

# AUGUST 1934
## NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM
## SEGREGATION DIRECT FLOW AND STORED WATER
Corrected For River Channel Evaporation Losses
R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer
VALUES IN SECOND-FEET

Sheet 5, Nebraska Exhibit 226.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 2900 | 30 | 2 | 28 | 2870 | 185 | 2685 | 4 | 2574 | 2574 | 0 | 2942 | | 368 | 2942 | 0 | 326 | |
| 2 | 3000 | 50 | 3 | 47 | 2950 | 184 | 2766 | 5 | 2644 | 2644 | 0 | 3138 | | 494 | 3138 | 0 | 356 | |
| 3 | 2980 | 20 | 1 | 19 | 2960 | 186 | 2774 | 6 | 2711 | a 2711 | a 0 | 3054 | | 343 | 3054 | 0 | 269 | |
| 4 | 2950 | 15 | 1 | 14 | 2935 | 186 | 2749 | 7 | 2864 | 2749 | 115 | 2990 | | 126 | 2875 | 115 | 86 | |
| 5 | 3200 | 15 | 1 | 14 | 3185 | 186 | 2999 | 8 | 2989 | 2989 | 0 | 3070 | | 81 | 3070 | 0 | 211 | |
| 6 | 3070 | 300 | 18 | 282 | 2770 | 169 | 2601 | 9 | 2738 | 2601 | 137 | 3040 | | 302 | 2903 | 137 | 332 | |
| 7 | 2800 | 320 | 21 | 299 | 2480 | 166 | 2314 | 10 | 2556 | 2314 | 242 | 3070 | | 514 | 2828 | 242 | 244 | |
| 8 | 2510 | 240 | 18 | 222 | 2270 | 169 | 2101 | 11 | 2420 | 2101 | 319 | 2894 | | 474 | 2575 | 319 | 90 | |
| 9 | 2240 | 170 | 14 | 156 | 2070 | 173 | 1897 | 12 | 2119 | 1897 | 222 | 2366 | | 247 | 2144 | 222 | 121 | |
| 10 | 2020 | 60 | 6 | 54 | 1960 | 181 | 1779 | 13 | 1930 | 1779 | 151 | 1920 | 10 | | 1769 | 151 | 90 | |
| 11 | 1810 | 160 | 16 | 144 | 1650 | 171 | 1479 | 14 | 1723 | 1479 | 244 | 1920 | | 197 | 1676 | 244 | 87 | |
| 12 | 1600 | 180 | 21 | 159 | 1420 | 166 | 1254 | 15 | 1573 | 1254 | 319 | 1956 | | 383 | 1637 | 319 | 27 | |
| 13 | 1340 | 100 | 14 | 86 | 1240 | 173 | 1067 | 16 | 1451 | 1067 | 384 | 1174 | 277 | | 790 | 384 | | 111 |
| 14 | 1050 | 10 | 2 | 8 | 1040 | 185 | 855 | 17 | 1401 | 855 | 546 | 786 | 615 | | 240 | 546 | | 351 |
| 15 | 880 | 5 | 1 | 49 | 875 | 186 | 689 | 18 | 1216 | 689 | 527 | 470 | b 746 | | 0 | 470 | | 336 |
| 16 | 820 | 35 | 8 | 27 | 785 | 179 | 606 | 19 | 947 | 606 | 341 | 352 | 595 | | 11 | 341 | | 127 |
| 17 | 790 | 150 | 36 | 114 | 640 | 151 | 489 | 20 | 874 | 489 | 385 | 758 | 116 | | 373 | 385 | | 84 |
| 18 | 750 | 85 | 21 | 64 | 665 | 166 | 499 | 21 | 848 | 499 | 349 | 1347 | | 499 | 998 | 349 | | 98 |
| 19 | 4420 | 160 | 71 | 89 | 260 | 116 | 144 | 22 | 784 | 144 | 640 | 1525 | | 741 | 885 | 640 | | 364 |
| 20 | 360 | 200 | 104 | 96 | 160 | 83 | 77 | 23 | 658 | 77 | 581 | 1515 | | 857 | 934 | 581 | | 298 |
| 21 | 360 | 170 | 88 | 82 | 190 | 99 | 91 | 24 | 522 | 91 | 431 | 1495 | | 973 | 1064 | 431 | | 162 |
| 22 | 340 | 90 | 49 | 41 | 250 | 138 | 112 | 25 | 401 | 112 | 289 | 1505 | | 1104 | 1216 | 289 | | 61 |
| 23 | 330 | 90 | 51 | 39 | 240 | 136 | 104 | 26 | 411 | 104 | 307 | 1495 | | 1084 | 1188 | 307 | | 81 |
| 24 | 320 | 95 | 56 | 39 | 225 | 131 | 94 | 27 | 431 | 94 | 337 | 1455 | | 1024 | 1118 | 337 | | 111 |
| 25 | 130 | 140 | 130 | 0 | 0 | 0 | 0 | 28 | 436 | 0 | 436 | 1328 | | 892 | 892 | 436 | | 306 |
| 26 | 80 | 120 | 80 | 0 | 0 | 0 | 0 | 29 | 449 | 0 | 449 | 852 | | 403 | 403 | 449 | | 369 |
| 27 | 110 | 110 | 110 | 0 | 0 | 0 | 0 | 30 | 443 | 0 | 443 | 302 | c 141 | | 0 | 302 | | 333 |
| 28 | 110 | 105 | 105 | 0 | 5 | 5 | 0 | 31 | 337 | 0 | 337 | 226 | d 111 | | 0 | 226 | | 227 |
| 29 | 110 | 110 | 110 | 0 | 0 | 0 | 0 | 1 | 290 | 0 | 290 | 335 | | 45 | 45 | 290 | | 180 |
| 30 | 110 | 70 | 70 | 0 | 40 | 40 | 0 | 2 | 262 | 0 | 262 | 247 | e 15 | | 0 | 247 | | 152 |
| 31 | 105 | 80 | 80 | 0 | 25 | 25 | 0 | 3 | 297 | 0 | 297 | 307 | | 10 | 10 | 297 | | 192 |
| Totals | 39595 | 3485 | 1308 | 2172 | 36160 | 3935 | 32225 | | 41299 | 31919 | 9380 | 49834 | 2626 | 11161 | 40778 | 9056 | 2239 | 3943 |
| Acre-feet | 79190 | 6970 | 2616 | 2344 | 72320 | 7870 | 64450 | | 82598 | 63838 | 18760 | 99668 | 5252 | 22322 | 81556 | 18112 | 4478 | 7886 |

(a) Aug. 4 Loss Reservoir Water S. F. 111
5 Loss Reservoir Water 122
6 Loss Reservoir Water 63
8 Loss Reservoir Water 10
306
612 A. F.

(b) 57 Sec.-Ft. direct flow stored.
(c) 141 Sec.-Ft. direct flow stored.
(d) 111 Sec.-Ft. direct flow stored.
(e) 15 Sec.-Ft. direct flow stored.

September Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
138 Second-Feet.

SEPTEMBER 1934

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 6, Nebraska Exhibit 226.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 80 | 80 | | | 0 | | 0 | 4 | 313 | 0 | 313 | 313 | 0 | 0 | 0 | 313 | | 233 |
| 2 | 83 | 96 | | | 0 | | 0 | 5 | 277 | 0 | 277 | 307 | | 30 | 30 | 277 | | 194 |
| 3 | 83 | 111 | | | 0 | | 0 | 6 | 286 | 0 | 286 | 291 | | 5 | 5 | 286 | | 203 |
| 4 | 84 | 91 | | | 0 | | 0 | 7 | 265 | 0 | 265 | 280 | | 15 | 15 | 265 | | 181 |
| 5 | 83 | 84 | | | 0 | | 0 | 8 | 269 | 0 | 269 | 274 | | 5 | 5 | 269 | | 186 |
| 6 | 83 | 80 | | | 3 | 3 | 0 | 9 | 261 | 0 | 261 | 266 | | 5 | 5 | 261 | | 178 |
| 7 | 83 | 80 | | | 3 | 3 | 0 | 10 | 257 | 0 | 257 | 237 | 20 | | 0 | 237 | | 174 |
| 8 | 83 | 78 | | | 5 | 5 | 0 | 11 | 289 | 0 | 289 | 264 | 25 | | 0 | 264 | | 206 |
| 9 | 83 | 79 | | | 4 | 4 | 0 | 12 | 278 | 0 | 278 | 318 | | 40 | 40 | 278 | | 195 |
| 10 | 83 | 103 | | | 0 | | 0 | 13 | 482 | 0 | 482 | 341 | 141 | | 0 | 341 | | 399 |
| 11 | 83 | 89 | | | 0 | | 0 | 14 | 386 | 0 | 386 | 381 | 5 | | 0 | 381 | | 303 |
| 12 | 83 | 85 | | | 0 | | 0 | 15 | 299 | 0 | 299 | 375 | | 76 | 76 | 299 | | 216 |
| 13 | 83 | 96 | | | 0 | | 0 | 16 | 267 | 0 | 267 | 247 | 20 | | 0 | 247 | | 184 |
| 14 | 83 | 114 | | | 0 | | 0 | 17 | 229 | 0 | 229 | 324 | | 95 | 95 | 229 | | 146 |
| 15 | 83 | 93 | | | 0 | | 0 | 18 | 230 | 0 | 230 | 280 | | 50 | 50 | 230 | | 147 |
| 16 | 83 | 105 | | | 0 | | 0 | 19 | 207 | 0 | 207 | 237 | | 30 | 30 | 207 | | 124 |
| 17 | 83 | 98 | | | 0 | | 0 | 20 | 198 | 0 | 198 | 258 | | 60 | 60 | 198 | | 115 |
| 18 | 83 | 98 | | | 0 | | 0 | 21 | 195 | 0 | 195 | 165 | 30 | | 0 | 165 | | 112 |
| 19 | 83 | 88 | | | 0 | | 0 | 22 | 196 | 0 | 196 | 131 | 65 | | 0 | 131 | | 113 |
| 20 | 83 | 83 | | | 0 | | 0 | 23 | 190 | 0 | 190 | 190 | 0 | 0 | 0 | 190 | | 107 |
| 21 | 83 | 83 | | | 0 | | 0 | 24 | 205 | 0 | 205 | 190 | 15 | | 0 | 190 | | 122 |
| 22 | 83 | 93 | | | 0 | | 0 | 25 | 170 | 0 | 170 | 160 | 10 | | 0 | 160 | | 87 |
| 23 | 83 | 73 | | | 10 | 10 | 0 | 26 | 205 | 0 | 205 | 165 | 40 | | 0 | 165 | | 122 |
| 24 | 83 | 108 | | | 0 | | 0 | 27 | 210 | 0 | 210 | 160 | 50 | | 0 | 160 | | 127 |
| 25 | 83 | 93 | | | 0 | | 0 | 28 | 200 | 0 | 200 | 170 | 30 | | 0 | 170 | | 117 |
| 26 | 83 | 149 | | | 0 | | 0 | 29 | 226 | 0 | 226 | 175 | 51 | | 0 | 175 | | 143 |
| 27 | 83 | 123 | | | 0 | | 0 | 30 | 220 | 0 | 220 | 140 | 80 | | 0 | 140 | | 137 |
| 28 | 83 | 133 | | | 0 | | 0 | 1 | 295 | 0 | 205 | 150 | 55 | | 0 | 150 | | 122 |
| 29 | 83 | 113 | | | 0 | | 0 | 2 | 203 | 0 | 203 | 410 | | 207 | 207 | 203 | | 120 |
| 30 | 83 | 124 | | | 0 | | 0 | 3 | 211 | 0 | 211 | 584 | | 373 | 373 | 211 | | 128 |
| 31 | | | | | | | | | | | | | | | | | | |
| Totals | 2488 | 2918 | | | 25 | 25 | 0 | | 7429 | | 7429 | 7783 | 637 | 991 | 991 | 6792 | | 4941 |
| Acre-feet | 4976 | 5836 | | | 50 | 50 | 0 | | 14858 | | 14858 | 15566 | (a)1274 | 1982 | 1982 | 13584 | | 9882 |

(a) 1274 A.-Ft. direct flow stored in Guernsey Reservoir.

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STATE OF NEBRASKA
BUREAU OF IRRIGATION
R. H. WILLIS, CHIEF

Sheet 2 of Nebraska Exhibit 302
1936

# DAILY DISCHARGE LARAMIE RIVER NEAR FORT LARAMIE, WYOMING

From Unpublished Records U. S. Geological Survey in Cooperation with Bureau of Reclamation
Values in Second-feet

R. I. Meeker, Consulting Engineer

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 8 | 8 | 8 | 9 | 31 | 4 | 78 | 20 | 16 | 12 | 13 |
| 2 | 15 | 8 | 8 | 9 | 12 | 26 | 6 | 87 | 21 | 16 | 12 | 13 |
| 3 | 13 | 8 | 8 | 5 | 10 | 20 | 7 | 82 | 21 | 16 | 14 | 15 |
| 4 | 13 | 8 | 8 | 6 | 10 | 19 | 23 | 69 | 21 | 16 | 14 | 91 |
| 5 | 14 | 8 | 8 | 6 | 10 | 17 | 95 | 58 | 120 | 16 | 13 | 44 |
| 6 | 15 | 8 | 8 | 5 | 11 | 16 | 98 | 68 | 1380 | 16 | 13 | 37 |
| 7 | 14 | 8 | 9 | 4 | 12 | 16 | 102 | 130 | 630 | 16 | 13 | 32 |
| 8 | 13 | 8 | 12 | 4 | 12 | 15 | 111 | 125 | 372 | 16 | 12 | 29 |
| 9 | 13 | 8 | 10 | 6 | 11 | 13 | 120 | 122 | 300 | 15 | 12 | 24 |
| 10 | 13 | 8 | 8 | 6 | 10 | 13 | 120 | 115 | 279 | 15 | 12 | 26 |
| 11 | 12 | 8 | 8 | 6 | 8 | 13 | 109 | 115 | 205 | 15 | 12 | 26 |
| 12 | 10 | 8 | 8 | 7 | 8 | 10 | 159 | 118 | 165 | 14 | 12 | 25 |
| 13 | 9 | 8 | 8 | 8 | 8 | 9 | 400 | 100 | 138 | 44 | 12 | 23 |
| 14 | 9 | 9 | 8 | 6 | 8 | 8 | 360 | 93 | 104 | 31 | 12 | 20 |
| 15 | 9 | 9 | 8 | 5 | 8 | 8 | 244 | 82 | 93 | 32 | 12 | 19 |
| 16 | 7 | 8 | 8 | 5 | 8 | 8 | 196 | 78 | 91 | 28 | 12 | 20 |

STATE OF NEBRASKA
BUREAU OF IRRIGATION
R. H. WILLIS, CHIEF

Sheet 2 of Nebraska Exhibit 302—(Continued)
1936

## DAILY DISCHARGE LARAMIE RIVER NEAR FORT LARAMIE, WYOMING

From Unpublished Records U. S. Geological Survey in Cooperation with Bureau of Reclamation
Values in Second-feet

R. I. Meeker, Consulting Engineer

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 7 | 8 | 8 | 4 | 8 | 7 | 173 | 71 | 74 | 19 | 12 | 20 |
| 18 | 7 | 8 | 8 | 6 | 8 | 6 | 135 | 64 | 60 | 16 | 12 | 19 |
| 19 | 7 | 8 | 8 | 8 | 8 | 6 | 120 | 53 | 52 | 13 | 13 | 17 |
| 20 | 6 | 7 | 8 | 9 | 8 | 6 | 109 | 43 | 41 | 13 | 13 | 17 |
| 21 | 6 | 8 | 8 | 8 | 10 | 6 | 102 | 35 | 35 | 13 | 14 | 16 |
| 22 | 7 | 8 | 8 | 8 | 19 | 5 | 98 | 32 | 32 | 13 | 15 | 16 |
| 23 | 6 | 8 | 8 | 8 | 35 | 5 | 89 | 28 | 28 | 12 | 15 | 16 |
| 24 | 6 | 8 | 8 | 8 | 58 | 5 | 87 | 26 | 26 | 12 | 14 | 19 |
| 25 | 6 | 8 | 8 | 8 | 71 | 5 | 82 | 26 | 24 | 12 | 14 | 16 |
| 26 | 6 | 8 | 8 | 9 | 65 | 4 | 91 | 25 | 24 | 12 | 14 | 17 |
| 27 | 6 | 8 | 8 | 8 | 53 | 4 | 98 | 23 | 23 | 12 | 14 | 18 |
| 28 | 7 | 8 | 8 | 8 | 41 | 4 | 89 | 23 | 21 | 12 | 14 | 21 |
| 29 | 7 | 8 | 8 | 8 | 35 | 4 | 78 | 23 | 19 | 12 | 14 | 20 |
| 30 | 7 | 8 | 8 | 8 | | 4 | 78 | 21 | 17 | 12 | 14 | 20 |
| 31 | 7 | | 8 | 8 | | 4 | | 21 | | 13 | 14 | |

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...Evaporation Charge,
...Pathfinder Dam to Guernsey Dam,
...Second-Feet.

MAY 1936

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 2, Nebraska Exhibit 306.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. (b) | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 1445 | 5272 | 140 | 1305 | 0 | 0 | 0 | 4 | 1723 | 0 | 1723 | 1194 | (a) 529 | | 0 | 1194 | | 278 |
| 2 | 1030 | 4339 | 140 | 890 | 0 | 0 | 0 | 5 | 1572 | 0 | 1572 | 1370 | (a) 202 | | 0 | 1370 | | 542 |
| 3 | 534 | 4672 | 140 | 394 | 0 | 0 | 0 | 6 | 1151 | 0 | 1151 | 1817 | | 666 | 666 | 1151 | | 617 |
| 4 | 536 | 4341 | 140 | 396 | 0 | 0 | 0 | 7 | 1022 | 0 | 1022 | 2352 | | 1330 | 1330 | 1022 | | 486 |
| 5 | 538 | 4486 | 140 | 398 | 0 | 0 | 0 | 8 | 1040 | 0 | 1040 | 2860 | | 1820 | 1820 | 1040 | | 502 |
| 6 | 1056 | 4829 | 140 | 916 | 0 | 0 | 0 | 9 | 1098 | 0 | 1098 | 3206 | | 2108 | 2108 | 1098 | | 42 |
| 7 | 2062 | 5456 | 140 | 1922 | 0 | 0 | 0 | 10 | 1919 | 0 | 1919 | 3240 | | 1321 | 1321 | 1919 | 143 | |
| 8 | 2843 | 6181 | 140 | 2703 | 0 | 0 | 0 | 11 | 2685 | 0 | 2685 | 3366 | | 681 | 681 | 2685 | 158 | |
| 9 | 3018 | 5639 | 140 | 2878 | 0 | 0 | 0 | 12 | 3017 | 0 | 3017 | 3657 | | 640 | 640 | 3017 | 1 | |
| 10 | 3018 | 4944 | 140 | 2878 | 0 | 0 | 0 | 13 | 2801 | 0 | 2801 | 3910 | | 1109 | 1109 | 2801 | 217 | |
| 11 | 3018 | 4198 | 140 | 2878 | 0 | 0 | 0 | 14 | 2912 | 0 | 2912 | 3950 | | 1038 | 1038 | 2912 | 106 | |
| 12 | 3030 | 3675 | 140 | 2890 | 0 | 0 | 0 | 15 | 3141 | 0 | 3141 | 4316 | | 1175 | 1175 | 3141 | | 111 |
| 13 | 3917 | 3681 | 132 | 3549 | 236 | 8 | 228 | 16 | 3976 | 228 | 3748 | 4470 | | 494 | 722 | 3748 | | 59 |
| 14 | 4331 | 4044 | 131 | 3913 | 287 | 9 | 278 | 17 | 3081 | 278 | 2803 | 4422 | | 1341 | 1619 | 2803 | 1250 | |
| 15 | *1264 | 4618 | 140 | 1124 | 0 | 0 | 0 | 18 | 1528 | 0 | 1528 | 4664 | | 3136 | 3136 | 1528 | | 264 |
| 16 | 4075 | 5232 | 140 | 3935 | 0 | 0 | 0 | 19 | 4163 | 0 | 4163 | 4909 | | 746 | 746 | 4163 | | 88 |
| 17 | 5231 | 5797 | 140 | 5091 | 0 | 0 | 0 | 20 | 4900 | 0 | 4900 | 5142 | | 242 | 242 | 4900 | 331 | |
| 18 | 5452 | 6567 | 140 | 5312 | 0 | 0 | 0 | 21 | 5242 | 0 | 5242 | 5262 | | 20 | 20 | 5242 | 210 | |
| 19 | 5808 | 7276 | 140 | 5668 | 0 | 0 | 0 | 22 | 5495 | 0 | 5495 | 5430 | (a) 65 | | 0 | 5430 | 313 | |
| 20 | 5966 | 7231 | 140 | 5826 | 0 | 0 | 0 | 23 | 5653 | 0 | 5653 | 5502 | 151 | | 0 | 5502 | 313 | |
| 21 | 6014 | 6942 | 140 | 5874 | 0 | 0 | 0 | 24 | 5725 | 0 | 5725 | 5478 | 247 | | 0 | 5478 | 289 | |
| 22 | 6030 | 6936 | 140 | 5890 | 0 | 0 | 0 | 25 | 5798 | 0 | 5798 | 5430 | 368 | | 0 | 5430 | 232 | |
| 23 | 6054 | 6832 | 140 | 5914 | 0 | 0 | 0 | 26 | 5831 | 0 | 5831 | 5382 | 449 | | 0 | 5382 | 223 | |
| 24 | 6062 | 6250 | 140 | 5922 | 0 | 0 | 0 | 27 | 5802 | 0 | 5802 | 5358 | 444 | | 0 | 5358 | 260 | |
| 25 | 6062 | 6429 | 140 | 5922 | 0 | 0 | 0 | 28 | 5503 | 0 | 5503 | 5382 | 121 | | 0 | 5382 | 559 | |
| 26 | 5549 | 6057 | 140 | 5400 | 0 | 0 | 0 | 29 | 5765 | 0 | 5765 | 5286 | 479 | | 0 | 5286 | | 225 |
| 27 | 6062 | 6178 | 140 | 5922 | 0 | 0 | 0 | 30 | 5865 | 0 | 5865 | 5094 | 771 | | 0 | 5094 | 197 | |
| 28 | 6062 | 6557 | 140 | 5922 | 0 | 0 | 0 | 31 | 5862 | 0 | 5862 | 4909 | 953 | | 0 | 4909 | 200 | |
| 29 | 6062 | 6685 | 140 | 5922 | 0 | 0 | 0 | 1 | 5859 | 0 | 5859 | 4932 | 927 | | 0 | 4932 | 205 | |
| 30 | 6070 | 6992 | 140 | 5930 | 0 | 0 | 0 | 2 | 5596 | 0 | 5596 | 4840 | 756 | | 0 | 4840 | 474 | |
| 31 | 5524 | 7070 | 140 | 5384 | 0 | 0 | 0 | 3 | 5382 | 0 | 5382 | 4510 | (a) 872 | | 0 | 4510 | 142 | |
| Totals | 123714 | 176006 | 4223 | 118868 | 523 | 17 | 506 | | 121107 | 506 | 120601 | 131640 | 7334 | 17867 | 18373 | 113287 | 5821 | 3214 |
| Acre-feet | 247428 | 352012 | 8446 | 237736 | 1046 | 34 | 1012 | | 242214 | 1012 | 241202 | 263280 | 14668 | 35734 | 36746 | 226534 | 11642 | 6428 |

* Pathfinder discharge reduced to 0 flow for 12 hours account trouble at Alcova Dam and Casper.

(b) Pathfinder inflow except May 13 and 14.

(a) Column 14, direct flow stored in Guernsey Reservoir 14,668 acre-feet.

River Channel Evaporation Charge, Pathfinder Dam to Guernsey Dam, 196 Second-Feet.

JUNE 1936

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 3, Nebraska Exhibit 305.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain Path. D.-Guern. D. | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. (b) | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 5470 | 7451 | 196 | 5274 | 0 | | 0 | 4 | 5354 | 0 | 5354 | 4422 | (a) 932 | | 0 | 4422 | 116 | |
| 2 | 5477 | 7590 | 196 | 5281 | 0 | | 0 | 5 | 4782 | 0 | 4782 | 3890 | 892 | | 0 | 3890 | 695 | |
| 3 | 2702 | 8093 | 196 | 2506 | 0 | | 0 | 6 | 3885 | 0 | 3885 | 2226 | 1659 | | 0 | 2226 | | 1183 |
| 4 | 1607 | 7280 | 196 | 1411 | 0 | | 0 | 7 | 3591 | 0 | 3591 | 1574 | 2017 | | 0 | 1574 | | 1984 |
| 5 | 4816 | 6939 | 196 | 4620 | 0 | | 0 | 8 | 3897 | 0 | 3897 | 1422 | 2475 | | 0 | 1422 | 919 | |
| 6 | 2393 | 6568 | 196 | 2197 | 0 | | 0 | 9 | 2476 | 0 | 2476 | 1695 | 781 | | 0 | 1695 | | 83 |
| 7 | 1962 | 7021 | 196 | 1766 | 0 | | 0 | 10 | 2192 | 0 | 2192 | 1194 | 998 | | 0 | 1194 | | 230 |
| 8 | 1481 | 5804 | 196 | 1285 | 0 | | 0 | 11 | 1882 | 0 | 1882 | 1085 | 797 | | 0 | 1085 | | 401 |
| 9 | 908 | 5073 | 196 | 712 | 0 | | 0 | 12 | 1328 | 0 | 1328 | 1061 | 267 | | 0 | 1061 | | 420 |
| 10 | 598 | 4665 | 196 | 402 | 0 | | 0 | 13 | 1174 | 0 | 1174 | 1053 | (a) 121 | | 0 | 1053 | | 676 |
| 11 | 462 | 4440 | 196 | 266 | 0 | | 0 | 14 | 889 | 0 | 889 | 1045 | | 156 | 156 | 889 | | 427 |
| 12 | 462 | 4169 | 196 | 266 | 0 | 0 | 0 | 15 | 799 | 0 | 799 | 1061 | | 262 | 262 | 799 | | 337 |
| 13 | 464 | 4167 | 196 | 268 | 0 | | 0 | 16 | 674 | 0 | 674 | 1783 | | 1109 | 1109 | 674 | | 210 |
| 14 | 466 | 3945 | 196 | 270 | 0 | | 0 | 17 | 806 | 0 | 806 | 2974 | | 2168 | 2168 | 806 | | 340 |
| 15 | 466 | 4053 | 196 | 270 | 0 | | 0 | 18 | 825 | 0 | 825 | 3366 | | 2541 | 2541 | 825 | | 359 |
| 16 | 466 | 3970 | 196 | 270 | 0 | | 0 | 19 | 847 | 0 | 847 | 3600 | | 2753 | 2753 | 847 | | 381 |
| 17 | 1961 | 3899 | 196 | 1765 | 0 | | 0 | 20 | 995 | 0 | 995 | 4050 | | 3055 | 3055 | 995 | 966 | |
| 18 | 2941 | 3898 | 196 | 2745 | 0 | | 0 | 21 | 2473 | 0 | 2473 | 4232 | | 1759 | 1759 | 2473 | 468 | |
| 19 | 3679 | 3691 | 196 | 3483 | 0 | | 0 | 22 | 3413 | 0 | 3413 | 4466 | | 1053 | 1053 | 3413 | 266 | |
| 20 | 4040 | 3661 | 178 | 3483 | 379 | 18 | 361 | 23 | 3842 | 361 | 3481 | 4664 | | 822 | 1183 | 3481 | 198 | |
| 21 | 4815 | 3073 | 125 | 2948 | 1742 | 71 | 1671 | 24 | 4424 | 1671 | 2753 | 4978 | | 554 | 2225 | 2753 | 391 | |
| 22 | 5091 | 2697 | 104 | 2593 | 2394 | 92 | 2302 | 25 | 4802 | 2302 | 2500 | 5190 | | 388 | 2690 | 2500 | 289 | |
| 23 | 5267 | 2700 | 101 | 2599 | 2567 | 95 | 2472 | 26 | 5044 | 2472 | 2572 | 5286 | | 242 | 2714 | 2572 | 223 | |
| 24 | 5637 | 2695 | 94 | 2601 | 2942 | 102 | 2840 | 27 | 5397 | 2840 | 2557 | 5286 | 111 | | 2729 | 2557 | 240 | |
| 25 | 5830 | 2403 | 81 | 2322 | 3427 | 115 | 3312 | 28 | 5477 | 3312 | 2165 | 5286 | 191 | | 3121 | 2165 | 353 | |
| 26 | 5810 | 2001 | 67 | 1934 | 3809 | 129 | 3680 | 29 | 5495 | 3680 | 1815 | 4955 | 540 | | 3140 | 1815 | 315 | |
| 27 | 5782 | 2008 | 68 | 1940 | 3774 | 128 | 3646 | 30 | 5496 | 3646 | 1850 | 4886 | 610 | | 3036 | 1850 | 286 | |
| 28 | 5810 | 2176 | 73 | 2103 | 3634 | 123 | 3511 | 1 | 5288 | 3511 | 1777 | 5001 | 287 | | 3224 | 1777 | 522 | |
| 29 | 5211 | 2029 | 76 | 1953 | 3182 | 120 | 3062 | 2 | 4805 | 3062 | 1743 | 4840 | | 35 | 3097 | 1743 | 406 | |
| 30 | 4960 | 1485 | 59 | 1426 | 3475 | 137 | 3338 | 3 | 4438 | 3338 | 1100 | 4030 | 408 | | 2930 | 1100 | 522 | |
| 31 | | | | | | | | | | | | | | | | | | |
| Totals | 97034 | 129644 | 4750 | 60959 | 31325 | 1130 | 30195 | | 96790 | 30195 | 66595 | 100601 | 2047 | 16897 | 44945 | 55656 | 7175 | 7031 |
| Acre-feet | 194068 | 259288 | 9500 | 121918 | 62650 | 2260 | 60390 | | 193580 | 60390 | 133190 | 201202 | 4094 | 33794 | 89890 | 111312 | 14350 | 14062 |

(b) Pathfinder, inflow June 1 to 19.

June 3, Maximum inflow.
Jupe 18, Maximum storage.

(a) Column 14, direct flow stored in Guernsey Reservoir, 21,878 acre-feet, not out-of-priority.

JULY 1936

uly Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
215 Second-Feet.

NORTH PLATTE RIVER PATHFINDER DAM TO GUERNSEY DAM
SEGREGATION OF DIRECT FLOW AND STORED WATER
Corrected For River Channel Evaporation Losses
R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer
VALUES IN SECOND-FEET

Sheet 4, Nebraska Exhibit 306.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain | |
| Month | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 4625 | 1547 | 72 | 1475 | 3078 | 143 | 2935 | 4 | 4358 | 2935 | 1423 | 4232 | 126 | | 2809 | 1423 | 267 | |
| 2 | 4558 | 1548 | 73 | 1475 | 3010 | 142 | 2868 | 5 | 4369 | 2868 | 1501 | 4253 | 116 | | 2752 | 1501 | 189 | |
| 3 | 4537 | 1255 | 59 | 1196 | 3282 | 156 | 3126 | 6 | 4283 | 3126 | 1157 | 4253 | 30 | | 3096 | 1157 | 254 | |
| 4 | 4530 | 1126 | 53 | 1073 | 3404 | 162 | 3242 | 7 | 4328 | 3242 | 1086 | 4232 | 96 | | 3146 | 1086 | 202 | |
| 5 | 4523 | 1017 | 48 | 969 | 3506 | 167 | 3339 | 8 | 4291 | 3339 | 952 | 4130 | 161 | | 3178 | 952 | 232 | |
| 6 | 4502 | 764 | 36 | 728 | 3738 | 179 | 3559 | 9 | 4262 | 3559 | 703 | 4232 | 30 | | 3529 | 703 | 240 | |
| 7 | 4474 | 854 | 41 | 813 | 3620 | 174 | 3446 | 10 | 4282 | 3446 | 836 | 4337 | | 55 | 3501 | 836 | 192 | |
| 8 | 4446 | 652 | 32 | 620 | 3794 | 183 | 3611 | 11 | 4266 | 3611 | 655 | 4422 | | 156 | 3767 | 655 | 180 | |
| 9 | 4523 | 530 | 25 | 505 | 3993 | 190 | 3803 | 12 | 4366 | 3803 | 563 | 4316 | 50 | | 3753 | 563 | 157 | |
| 10 | 4537 | 488 | 23 | 465 | 4049 | 192 | 3857 | 13 | 4598 | 3857 | 741 | 4190 | 408 | | 3449 | 741 | | 61 |
| 11 | 4516 | 491 | 23 | 468 | 4025 | 192 | 3833 | 14 | 4848 | 3833 | 1015 | 3890 | 958 | | 2875 | 1015 | | 332 |
| 12 | 4481 | 495 | 24 | 471 | 3986 | 191 | 3795 | 15 | 4634 | 3795 | 839 | 4110 | 524 | | 3271 | 839 | | 153 |
| 13 | 4432 | 806 | 39 | 767 | 3626 | 176 | 3450 | 16 | 4319 | 3450 | 869 | 3890 | 429 | | 3021 | 869 | 113 | |
| 14 | 4425 | 1718 | 83 | 1635 | 2707 | 132 | 2575 | 17 | 4361 | 2575 | 1786 | 4190 | 171 | | 2404 | 1786 | 64 | |
| 15 | 4552 | 1835 | 86 | 1749 | 2717 | 129 | 2588 | 18 | 4352 | 2588 | 1764 | 4190 | 162 | | 2426 | 1764 | 200 | |
| 16 | 4551 | 1510 | 71 | 1439 | 3041 | 144 | 2897 | 19 | 4233 | 2897 | 1336 | 3830 | 403 | | 2494 | 1336 | 318 | |
| 17 | 4086 | 1410 | 74 | 1336 | 2676 | 141 | 2535 | 20 | 3900 | 2535 | 1365 | 3890 | 10 | | 2525 | 1365 | 186 | |
| 18 | 4026 | 1108 | 59 | 1049 | 2918 | 156 | 2762 | 21 | 3854 | 2762 | 1092 | 3950 | | 96 | 2858 | 1092 | 172 | |
| 19 | 3998 | 954 | 51 | 903 | 3044 | 164 | 2880 | 22 | 4015 | 2880 | 1135 | 3970 | 45 | | 2835 | 1135 | | 17 |
| 20 | 3977 | 845 | 46 | 799 | 3132 | 169 | 2963 | 23 | 3849 | 2963 | 886 | 3733 | 116 | | 2847 | 886 | 128 | |
| 21 | 4010 | 783 | 42 | 741 | 3227 | 173 | 3054 | 24 | 3797 | 3054 | 743 | 3676 | 121 | | 2933 | 743 | 213 | |
| 22 | 3991 | 864 | 47 | 817 | 3127 | 168 | 2959 | 25 | 3782 | 2959 | 823 | 3600 | 182 | | 2777 | 823 | 209 | |
| 23 | 3977 | 716 | 39 | 677 | 3261 | 176 | 3085 | 26 | 3625 | 3085 | 540 | 3600 | 25 | | 3060 | 540 | 352 | |
| 24 | 3631 | 763 | 45 | 718 | 2868 | 170 | 2698 | 27 | 3503 | 2698 | 805 | 3564 | | 61 | 2759 | 805 | 128 | |
| 25 | 3615 | 540 | 32 | 508 | 3075 | 183 | 2892 | 28 | 3406 | 2892 | 514 | 3456 | | 50 | 2942 | 512 | 209 | |
| 26 | 3596 | 536 | 32 | 504 | 3060 | 183 | 2877 | 29 | 3321 | 2377 | 444 | 3528 | | 207 | 3084 | 444 | 275 | |
| 27 | 3604 | 529 | 32 | 497 | 3075 | 183 | 2892 | 30 | 3407 | 2892 | 515 | 3492 | | 85 | 2977 | 515 | 197 | |
| 28 | 3596 | 382 | 23 | 359 | 3214 | 192 | 3022 | 31 | 3452 | 3022 | 430 | 3366 | 86 | | 2936 | 430 | 144 | |
| 29 | 3570 | 401 | 24 | 377 | 3169 | 191 | 2978 | 1 | 3466 | 2978 | 488 | 3330 | 136 | | 2842 | 488 | 104 | |
| 30 | 3679 | 418 | 24 | 394 | 3261 | 191 | 3070 | 2 | 3484 | 3070 | 414 | 3312 | 172 | | 2898 | 414 | 195 | |
| 31 | 3660 | 623 | 37 | 586 | 3037 | 178 | 2859 | 3 | 3572 | 2859 | 713 | 3330 | 242 | | 2617 | 713 | 88 | |
| Totals | 129228 | 27508 | 1393 | 26113 | 101720 | 5270 | 96450 | | 124583 | 96450 | 28133 | 120494 | 4799 | 710 | 92361 | 28133 | 5208 | 563 |
| Acre-feet | 258456 | 55016 | 2786 | 52226 | 203440 | 10540 | 192900 | | 249166 | 192900 | 56266 | 240988 | 9598 | 1420 | 184722 | 56266 | 10416 | 1126 |

August Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
187 Second-Feet.

AUGUST 1936

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 5, Nebraska Exhibit 306.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 3635 | 780 | 40 | 740 | 2855 | 147 | 2708 | 4 | 3558 | 2708 | 850 | 2958 | 600 | | 2108 | 850 | 77 | |
| 2 | 3602 | 801 | 41 | 760 | 2801 | 146 | 2655 | 5 | 3518 | 2655 | 863 | 2465 | 1053 | | 1602 | 863 | 84 | |
| 3 | 3570 | 964 | 51 | 913 | 2606 | 136 | 2470 | 6 | 3301 | 2470 | 831 | 2555 | 746 | | 1724 | 831 | 269 | |
| 4 | 3076 | 1635 | 99 | 1536 | 1441 | 88 | 1353 | 7 | 2953 | 1353 | 1600 | 3155 | | 202 | 1555 | 1600 | 123 | |
| 5 | 3127 | 1813 | 159 | 1654 | 324 | 28 | 296 | 8 | 2346 | 296 | 2050 | 3006 | | 660 | 956 | 2050 | | 209 |
| 6 | 2060 | 1640 | 149 | 1491 | 420 | 38 | 382 | 9 | 2214 | 382 | 1832 | 3121 | | 907 | 1289 | 1832 | | 154 |
| 7 | 2856 | 1359 | 89 | 1270 | 1497 | 98 | 1399 | 10 | 2836 | 1399 | 1437 | 3038 | | 202 | 1601 | 1437 | 20 | |
| 8 | 3006 | 1286 | 80 | 1206 | 1720 | 107 | 1613 | 11 | 2913 | 1613 | 1300 | 3170 | | 257 | 1870 | 1300 | 93 | |
| 9 | 2988 | 1141 | 71 | 1070 | 1847 | 116 | 1731 | 12 | 2960 | 1731 | 1229 | 3348 | | 388 | 2119 | 1229 | 28 | |
| 10 | 3001 | 1024 | 64 | 960 | 1977 | 123 | 1854 | 13 | 2978 | 1854 | 1124 | 3910 | | 932 | 2786 | 1124 | 23 | |
| 11 | 2153 | 827 | 72 | 755 | 1326 | 115 | 1211 | 14 | 2638 | 1211 | 1427 | 3752 | | 1114 | 2325 | 1427 | | 485 |
| 12 | 3078 | 890 | 54 | 836 | 2188 | 133 | 2055 | 15 | 2928 | 2055 | 873 | 3850 | | 922 | 2977 | 873 | 150 | |
| 13 | 3060 | 612 | 37 | 575 | 2448 | 150 | 2298 | 16 | 2938 | 2298 | 640 | 3870 | | 932 | 3230 | 640 | 122 | |
| 14 | 3024 | 680 | 42 | 638 | 2344 | 145 | 2199 | 17 | 2865 | 2199 | 666 | 3752 | | 887 | 3086 | 666 | 159 | |
| 15 | 3656 | 548 | 28 | 520 | 3108 | 159 | 2949 | 18 | 3538 | 2949 | 589 | 3850 | | 312 | 3261 | 589 | 118 | |
| 16 | 3810 | 651 | 32 | 619 | 3159 | 155 | 3004 | 19 | 3497 | 3004 | 493 | 3890 | | 393 | 3397 | 493 | 313 | |
| 17 | 3765 | 656 | 33 | 623 | 3109 | 154 | 2955 | 20 | 3538 | 2955 | 583 | 3890 | | 352 | 3307 | 583 | 227 | |
| 18 | 3820 | 467 | 23 | 444 | 3353 | 164 | 3189 | 21 | 3650 | 3189 | 461 | 3695 | | 45 | 3234 | 461 | 170 | |
| 19 | 3765 | 407 | 20 | 387 | 3358 | 167 | 3191 | 22 | 3693 | 3191 | 502 | 3456 | 237 | | 2954 | 502 | 72 | |
| 20 | 3773 | 381 | 19 | 362 | 3392 | 168 | 3224 | 23 | 3733 | 3224 | 509 | 3350 | 383 | | 2841 | 509 | 40 | |
| 21 | 3895 | 363 | 17 | 346 | 3532 | 170 | 3362 | 24 | 3765 | 3362 | 403 | 3312 | 453 | | 2909 | 403 | 130 | |
| 22 | 3830 | 338 | 16 | 322 | 3492 | 171 | 3321 | 25 | 3688 | 3321 | 367 | 3366 | 322 | | 2999 | 367 | 142 | |
| 23 | 3842 | 325 | 16 | 309 | 3517 | 171 | 3346 | 26 | 3609 | 3346 | 263 | 3312 | 297 | | 3049 | 263 | 233 | |
| 24 | 3752 | 300 | 15 | 285 | 3452 | 172 | 3280 | 27 | 3595 | 3280 | 315 | 3223 | 372 | | 2908 | 315 | 157 | |
| 25 | 3807 | 280 | 14 | 266 | 3527 | 173 | 3354 | 28 | 3770 | 3354 | 416 | 3276 | 494 | | 2860 | 416 | 37 | |
| 26 | 3962 | 260 | 12 | 248 | 3702 | 175 | 3527 | 29 | 3847 | 3527 | 320 | 3172 | 675 | | 2852 | 320 | 115 | |
| 27 | 4047 | 240 | 11 | 229 | 3807 | 176 | 3631 | 30 | 3777 | 3631 | 146 | 3172 | 605 | | 3026 | 146 | 270 | |
| 28 | 3858 | 220 | 11 | 209 | 3638 | 176 | 3462 | 31 | 3658 | 3462 | 196 | 3240 | 418 | | 3044 | 196 | 200 | |
| 29 | 3641 | 200 | 10 | 190 | 3441 | 177 | 3264 | 1 | 3465 | 3264 | 201 | 3294 | 171 | | 3093 | 201 | 176 | |
| 30 | 3407 | 200 | 11 | 189 | 3207 | 176 | 3031 | 2 | 3198 | 3031 | 167 | 3384 | | 186 | 3217 | 167 | 209 | |
| 31 | 3138 | 200 | 12 | 188 | 2938 | 175 | 2763 | 3 | 3002 | 2763 | 239 | 3258 | | 256 | 3019 | 239 | 136 | |
| Totals | 105014 | 21488 | 1348 | 20140 | 83526 | 4449 | 79077 | | 101969 | 79077 | 22892 | 104090 | 6826 | 8947 | 81198 | 22892 | 3893 | 848 |
| Acre-feet | 210028 | 42976 | 2696 | 40280 | 167052 | 8898 | 158154 | | 203938 | 158154 | 45784 | 208180 | 13652 | 17890 | 162396 | 45784 | 7786 | 1696 |

SEPTEMBER 1936

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET



September Evaporation Charge, Pathfinder Dam to Guernsey Dam, 138 Second-Feet.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain Path. D.-Guern. D. | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | | | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 2832 | 200 | 10 | 190 | 2632 | 128 | 2504 | 4 | 2788 | 2504 | 284 | 2894 | | | 106 | 2610 | 284 | 44 | |
| 2 | 2518 | 186 | 10 | 176 | 2332 | 128 | 2204 | 5 | 2554 | 2204 | 350 | 2766 | | | 212 | 2416 | 350 | | 36 |
| 3 | 2243 | 182 | 11 | 171 | 2061 | 127 | 1934 | 6 | 2282 | 1934 | 348 | 2846 | | | 564 | 2498 | 348 | | 39 |
| 4 | 2015 | 186 | 13 | 173 | 1829 | 125 | 1704 | 7 | 2076 | 1704 | 372 | 2380 | | | 304 | 2008 | 372 | | 61 |
| 5 | 1763 | 213 | 17 | 196 | 1550 | 121 | 1429 | 8 | 1922 | 1429 | 493 | 1897 | | 25 | | 1404 | 493 | | 159 |
| 6 | 1557 | 217 | 19 | 198 | 1340 | 119 | 1221 | 9 | 1736 | 1221 | 515 | 1444 | | 292 | | 929 | 515 | | 179 |
| 7 | 1329 | 200 | 21 | 179 | 1129 | 117 | 1012 | 10 | 1574 | 1012 | 562 | 1433 | | 141 | | 871 | 562 | | 245 |
| 8 | 1096 | 209 | 26 | 183 | 887 | 112 | 775 | 11 | 1366 | 775 | 591 | 1497 | | | 131 | 906 | 591 | | 270 |
| 9 | 917 | 209 | 31 | 178 | 708 | 107 | 601 | 12 | 1224 | 601 | 623 | 1194 | | 30 | | 571 | 623 | | 307 |
| 10 | 825 | 192 | 32 | 160 | 633 | 106 | 527 | 13 | 1102 | 527 | 575 | 880 | | 222 | | 305 | 575 | | 277 |
| 11 | 794 | 186 | 32 | 154 | 628 | 106 | 502 | 14 | 1116 | 502 | 614 | 440 | (a) | 174 | 502 | 0 | 440 | | 322 |
| 12 | 168 | *264 | 138 | 30 | 0 | 0 | 0 | 15 | 974 | 0 | 974 | 369 | | 605 | | 0 | 369 | | 806 |
| 13 | 200 | *243 | 138 | 62 | 0 | 0 | 0 | 16 | 737 | 0 | 737 | 440 | | 297 | | 0 | 440 | | 537 |
| 14 | 206 | *215 | 138 | 68 | 0 | 0 | 0 | 17 | 582 | 0 | 582 | 410 | | 172 | | 0 | 410 | | 376 |
| 15 | 206 | *216 | 138 | 68 | 0 | 0 | 0 | 18 | 439 | 0 | 439 | 404 | | 35 | | 0 | 404 | | 233 |
| 16 | 206 | *212 | 138 | 68 | 0 | 0 | 0 | 19 | 468 | 0 | 468 | 410 | | 58 | | 0 | 410 | | 262 |
| 17 | 206 | *230 | 138 | 68 | 0 | 0 | 0 | 20 | 457 | 0 | 457 | 381 | | 76 | | 0 | 381 | | 251 |
| 18 | 225 | *245 | 138 | 87 | 0 | 0 | 0 | 21 | 432 | 0 | 432 | 346 | | 86 | | 0 | 346 | | 207 |
| 19 | 246 | 236 | 132 | 104 | 10 | 6 | 4 | 22 | 406 | 4 | 402 | 346 | | 56 | 4 | 0 | 346 | | 160 |
| 20 | 248 | 233 | 130 | 103 | 15 | 8 | 7 | 23 | 454 | 7 | 447 | 358 | | 89 | 7 | 0 | 358 | | 206 |
| 21 | 248 | 227 | 126 | 101 | 21 | 12 | 9 | 24 | 389 | 9 | 380 | 364 | | 16 | 9 | 0 | 364 | | 141 |
| 22 | 235 | 224 | 132 | 92 | 11 | 6 | 5 | 25 | 425 | 5 | 420 | 375 | | 45 | 5 | 0 | 375 | | 190 |
| 23 | 221 | 221 | 138 | 83 | 0 | 0 | 0 | 26 | 457 | 0 | 457 | 381 | | 76 | | 0 | 381 | | 236 |
| 24 | 220 | *224 | 138 | 82 | 0 | 0 | 0 | 27 | 432 | 0 | 432 | 341 | | 91 | | 0 | 341 | | 212 |
| 25 | 220 | 215 | 135 | 80 | 5 | 3 | 2 | 28 | 448 | 2 | 446 | 352 | | 94 | 2 | 0 | 352 | | 228 |
| 26 | 220 | *229 | 138 | 82 | 0 | 0 | 0 | 29 | 480 | 0 | 480 | 404 | | 76 | | 0 | 404 | | 260 |
| 27 | 220 | *290 | 138 | 82 | 0 | 0 | 0 | 30 | 449 | 0 | 449 | 404 | | 45 | | 0 | 404 | | 229 |
| 28 | 220 | *275 | 138 | 82 | 0 | 0 | 0 | 1 | 417 | 0 | 417 | 341 | | 76 | | 0 | 341 | | 197 |
| 29 | 208 | *278 | 138 | 70 | 0 | 0 | 0 | 2 | 426 | 0 | 426 | 330 | | 96 | | 0 | 330 | | 218 |
| 30 | 201 | *269 | 138 | 63 | 0 | 0 | 0 | 3 | 362 | 0 | 362 | 296 | (a) | 66 | | 0 | 296 | | 161 |
| 31 | | | | | | | | | | | | | | | | | | | |
| Totals | 22013 | 6725 | 2809 | 3433 | 15771 | 1331 | 14440 | | 28974 | 14440 | 14534 | 26723 | (a) | 2329 | 1239 | 1317 | 14518 | 12205 | 44 | 7005 |
| Acre-feet | 44026 | 13452 | 5618 | 6866 | 31542 | 2662 | 28880 | | 57948 | 28880 | 29068 | 53446 | | 4658 | 2478 | 2634 | 29036 | 24410 | 88 | 14010 |

* Pathfinder Inflow; same days some direct flow stored in Pathfinder Reservoir, 968 acre-feet.

(a) Column 14, direct flow stored in Guernsey Reservoir, 4658 acre-feet.

...y Evaporation Charge,
...thfinder Dam to Guernsey Dam,
...0 Second-Feet.

MAY 1932

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 1, Nebraska Exhibit 417.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 0 | 3200 | | 0 | 0 | | 0 | 4 | 1126 | 0 | 1126 | 1280 | | 154 | 154 | 1126 | | 1126 |
| 2 | 0 | 3210 | | 0 | 0 | | 0 | 5 | 1451 | 0 | 1451 | 1140 | (a) 311 | | | 1140 | | 1451 |
| 3 | 0 | 3240 | | 0 | 0 | | 0 | 6 | 2088 | 0 | 2088 | 1020 | 1068 | | | 1020 | | 2088 |
| 4 | 0 | 3060 | | 0 | 0 | | 0 | 7 | 2308 | 0 | 2308 | 947 | 1361 | | | 947 | | 2308 |
| 5 | 0 | 3340 | | 0 | 0 | | 0 | 8 | 2405 | 0 | 2405 | 1000 | 1405 | | | 1000 | | 2405 |
| 6 | 0 | 3890 | | 0 | 0 | | 0 | 9 | 2289 | 0 | 2289 | 1070 | 1219 | | | 1070 | | 2289 |
| 7 | 0 | 5680 | | 0 | 0 | | 0 | 10 | 2038 | 0 | 2038 | 1040 | 998 | | | 1040 | | 2038 |
| 8 | 0 | 5540 | | 0 | 0 | | 0 | 11 | 2004 | 0 | 2004 | 1060 | 944 | | | 1060 | | 2004 |
| 9 | 0 | 5130 | | 0 | 0 | | 0 | 12 | 1964 | 0 | 1964 | 1080 | 884 | | | 1080 | | 1964 |
| 10 | 0 | 5260 | | 0 | 0 | | 0 | 13 | 1993 | 0 | 1993 | 1160 | 833 | | | 1160 | | 1993 |
| 11 | 0 | 5530 | | 0 | 0 | | 0 | 14 | 2063 | 0 | 2063 | 1280 | 783 | | | 1280 | | 2063 |
| 12 | 0 | 6070 | | 0 | 0 | | 0 | 15 | 2070 | 0 | 2070 | 1910 | 160 | | | 1910 | | 2070 |
| 13 | 0 | 7070 | | 0 | 0 | | 0 | 16 | 2027 | 0 | 2027 | 1990 | 37 | | | 1990 | | 2027 |
| 14 | 0 | 8140 | | 0 | 0 | | 0 | 17 | 2168 | 0 | 2168 | 1980 | (a) 188 | | | 1980 | | 2168 |
| 15 | 0 | 8680 | | 0 | 0 | | 0 | 18 | 1961 | 0 | 1961 | 2090 | | 129 | 129 | 1961 | | 1961 |
| 16 | 0 | 9640 | | 0 | 0 | | 0 | 19 | 1605 | 0 | 1605 | 2170 | | 565 | 565 | 1605 | | 1605 |
| 17 | 0 | 9760 | | 0 | 0 | | 0 | 20 | 1533 | 0 | 1533 | 2380 | | 847 | 847 | 1533 | | 1533 |
| 18 | 0 | 9090 | | 0 | 0 | | 0 | 21 | 1282 | 0 | 1282 | 2830 | | 1548 | 1548 | 1282 | | 1282 |
| 19 | 0 | 8550 | | 0 | 0 | | 0 | 22 | 1556 | 0 | 1556 | 2940 | | 1384 | 1384 | 1556 | | 1556 |
| 20 | 70 | 8610 | 70 | 0 | 0 | | 0 | 23 | 1304 | 0 | 1304 | 3100 | | 1796 | 1796 | 1304 | | 1234 |
| 21 | 530 | 9080 | 140 | 390 | 0 | | 0 | 24 | 1316 | 0 | 1316 | 3350 | | 2034 | 2034 | 1316 | | 786 |
| 22 | 940 | 10500 | 140 | 800 | 0 | | 0 | 25 | 1596 | 0 | 1596 | 3870 | | 2274 | 2274 | 1596 | | 656 |
| 23 | 960 | 11410 | 140 | 820 | 0 | | 0 | 26 | 1786 | 0 | 1786 | 4090 | | 2304 | 2304 | 1786 | | 326 |
| 24 | 2080 | 12060 | 140 | 1940 | 0 | | 0 | 27 | 2645 | 0 | 2645 | 4380 | | 1735 | 1735 | 2645 | | 565 |
| 25 | 3200 | 11920 | 140 | 3060 | 0 | | 0 | 28 | 3747 | 0 | 3747 | 4490 | | 743 | 743 | 3747 | | 547 |
| 26 | 3780 | 11310 | 140 | 3640 | 0 | | 0 | 29 | 4512 | 0 | 4512 | 4530 | | 18 | 18 | 4512 | | 732 |
| 27 | 4250 | 9900 | 140 | 4110 | 0 | | 0 | 30 | 4498 | 0 | 4498 | 4550 | | 52 | 52 | 4498 | | 248 |
| 28 | 4180 | 9170 | 140 | 4040 | 0 | | 0 | 31 | 4463 | 0 | 4463 | 4550 | | 87 | 87 | 4463 | | 283 |
| 29 | 4170 | 8190 | 140 | 4030 | 0 | | 0 | 1 | 4387 | 0 | 4387 | 4490 | | 103 | 103 | 4387 | | 217 |
| 30 | 4170 | 6800 | 140 | 4030 | 0 | | 0 | 2 | 4533 | 0 | 4533 | 4420 | (a) 113 | | | 4420 | | 363 |
| 31 | 4560 | 6770 | 140 | 4420 | 0 | | 0 | 3 | 4657 | 0 | 4657 | 4470 | (a) 187 | | | 4470 | | 97 |
| Totals | 32890 | 229790 | 1610 | 31280 | 0 | | 0 | | 75375 | 0 | 75375 | 80657 | (a)10491 | 15773 | 15773 | 64884 | | 42485 |
| Acre-feet | 65780 | 459580 | 3220 | 62560 | 0 | | 0 | | 150750 | 0 | 150750 | 161314 | (a)20982 | 31546 | 31546 | 129768 | | 84970 |

(a) Storage direct flow.

June Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
196 Second-Feet.

JUNE 1932

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 2, Nebraska Exhibit 417.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| Month | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 4640 | 6360 | 196 | 4444 | 0 | | 0 | 4 | 4607 | 0 | 4607 | 4470 | (a) 137 | | | 4470 | 33 | |
| 2 | 4640 | 6990 | 196 | 4444 | 0 | | 0 | 5 | 4817 | 0 | 4817 | 4360 | 457 | | | 4360 | | 177 |
| 3 | 5080 | 6590 | 196 | 4884 | 0 | | 0 | 6 | 5118 | 0 | 5118 | 4490 | 628 | | | 4490 | | 38 |
| 4 | 5330 | 6690 | 196 | 5134 | 0 | | 0 | 7 | 5115 | 0 | 5115 | 4860 | (a) 255 | | | 4860 | 215 | |
| 5 | 5310 | 6070 | 196 | 5114 | 0 | | 0 | 8 | 5141 | 0 | 5141 | 5260 | | 119 | 119 | 5141 | 169 | |
| 6 | 5310 | 6380 | 196 | 5114 | 0 | | 0 | 9 | 5157 | 0 | 5157 | 5450 | | 293 | 293 | 5157 | 153 | |
| 7 | 5320 | 7160 | 196 | 5124 | 0 | | 0 | 10 | 5109 | 0 | 5109 | 5820 | | 711 | 711 | 5109 | 211 | |
| 8 | 5310 | 7700 | 196 | 5114 | 0 | | 0 | 11 | 5501 | 0 | 5501 | 5950 | | 449 | 449 | 5501 | | 191 |
| 9 | 5740 | 7080 | 196 | 5544 | 0 | | 0 | 12 | 5532 | 0 | 5532 | 5950 | | 418 | 418 | 5532 | 208 | |
| 10 | 5720 | 7520 | 196 | 5524 | 0 | | 0 | 13 | 5957 | 0 | 5957 | 5650 | (a) 307 | | | 5650 | | 237 |
| 11 | 6450 | 7630 | 196 | 6254 | 0 | | 0 | 14 | 5848 | 0 | 5848 | 5550 | 298 | | | 5550 | 602 | |
| 12 | 6170 | 6980 | 196 | 5974 | 0 | | 0 | 15 | 5816 | 0 | 5816 | 5700 | 116 | | | 5700 | 354 | |
| 13 | 6210 | 6650 | 196 | 6014 | 0 | | 0 | 16 | 5830 | 0 | 5830 | 5500 | 330 | | | 5500 | 380 | |
| 14 | 6260 | 7760 | 196 | 6064 | 0 | | 0 | 17 | 5810 | 0 | 5810 | 5020 | 790 | | | 5020 | 450 | |
| 15 | 6270 | 7710 | 196 | 6074 | 0 | | 0 | 18 | 5688 | 0 | 5688 | 4930 | 758 | | | 4930 | 582 | |
| 16 | 6060 | 7000 | 196 | 5864 | 0 | | 0 | 19 | 5824 | 0 | 5824 | 4890 | 934 | | | 4890 | 236 | |
| 17 | 6110 | 7780 | 196 | 5914 | 0 | | 0 | 20 | 5679 | 0 | 5679 | 4620 | 1059 | | | 4620 | 431 | |
| 18 | 6070 | 8360 | 196 | 5874 | 0 | | 0 | 21 | 5803 | 0 | 5803 | 4600 | 1203 | | | 4600 | 267 | |
| 19 | 6170 | 8660 | 196 | 5974 | 0 | | 0 | 22 | 5741 | 0 | 5741 | 4580 | 1161 | | | 4580 | 429 | |
| 20 | 6190 | 8210 | 196 | 5994 | 0 | | 0 | 23 | 5541 | 0 | 5541 | 4660 | 881 | | | 4660 | 649 | |
| 21 | 5600 | 7690 | 196 | 5404 | 0 | | 0 | 24 | 5154 | 0 | 5154 | 4800 | 354 | | | 4800 | 446 | |
| 22 | 5490 | 7340 | 196 | 5294 | 0 | | 0 | 25 | 5251 | 0 | 5251 | 5020 | 231 | | | 5020 | 239 | |
| 23 | 5500 | 7060 | 196 | 5304 | 0 | | 0 | 26 | 5376 | 0 | 5376 | 5310 | (a) 66 | | | 5310 | 124 | |
| 24 | 5500 | 7420 | 196 | 5304 | 0 | | 0 | 27 | 5400 | 0 | 5400 | 5530 | | 130 | 130 | 5400 | 100 | |
| 25 | 5500 | 7590 | 196 | 5304 | 0 | | 0 | 28 | 5532 | 0 | 5532 | 5880 | | 348 | 348 | 5532 | | 32 |
| 26 | 5500 | 7570 | 196 | 5304 | 0 | | 0 | 29 | 5784 | 0 | 5784 | 6020 | | 136 | 136 | 5784 | | 284 |
| 27 | 5510 | 7770 | 196 | 5314 | 0 | | 0 | 30 | 5511 | 0 | 5511 | 6050 | | 539 | 539 | 5511 | | 1 |
| 28 | 5520 | 7370 | 196 | 5324 | 0 | | 0 | 1 | 5480 | 0 | 5480 | 6050 | | 570 | 570 | 5480 | 40 | |
| 29 | 5530 | 7340 | 196 | 5334 | 0 | | 0 | 2 | 5431 | 0 | 5431 | 6080 | | 649 | 649 | 5431 | 99 | |
| 30 | 5500 | 6930 | 196 | 5304 | 0 | | 0 | 3 | 5679 | 0 | 5679 | 6100 | | 421 | 421 | 5679 | | 179 |
| 31 | | | | | | | | | | | | | | | | | | |
| Totals | 169510 | 219460 | 5880 | 163630 | 0 | | 0 | | 164232 | 0 | 164232 | 159050 | 9965 | 4783 | 4783 | 154267 | 6417 | 1139 |
| Acre-feet | 339020 | 438920 | 11760 | 327260 | 0 | | 0 | | 328464 | 0 | 328464 | 318100 | 19930 | 9566 | 9566 | 308534 | 12834 | 2278 |

(a) Storage direct flow.

July Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
215 Second-Feet.

JULY 1932

# NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

## SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 3, Nebraska Exhibit 417.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. 7 | Gross Neb. Ex. 6 | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. 8-A | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. 8 | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 6000 | 6960 | 215 | 6745 | 0 | 0 | 0 | 4 | 5820 | 0 | 5820 | 6620 | | 800 | 800 | 5820 | 180 | |
| 2 | 6830 | 6630 | 215 | 6415 | 0 | 0 | 0 | 5 | 5831 | 0 | 5831 | 6620 | | 789 | 789 | 5831 | 199 | |
| 3 | 6020 | 5740 | 205 | 5535 | 280 | 10 | 270 | 6 | 5793 | 270 | 5523 | 6230 | | 437 | 707 | 5523 | 227 | |
| 4 | 6010 | 5680 | 203 | 5477 | 330 | 12 | 318 | 7 | 5767 | 318 | 5449 | 6210 | | 443 | 761 | 5449 | 243 | |
| 5 | 6010 | 4730 | 169 | 4561 | 1280 | 46 | 1234 | 8 | 5733 | 1234 | 4499 | 6080 | | 347 | 1581 | 4499 | 277 | |
| 6 | 6010 | 4460 | 160 | 4300 | 1550 | 55 | 1495 | 9 | 5744 | 1495 | 4249 | 6100 | | 356 | 1851 | 4249 | 266 | |
| 7 | 6010 | 4030 | 144 | 3886 | 1980 | 71 | 1909 | 10 | 5725 | 1909 | 3816 | 6130 | | 405 | 2314 | 3816 | 285 | |
| 8 | 6010 | 3270 | 117 | 3153 | 2740 | 98 | 2642 | 11 | 5735 | 2642 | 3093 | 6130 | | 395 | 3087 | 3093 | 275 | |
| 9 | 6010 | 2820 | 101 | 2719 | 3190 | 114 | 3076 | 12 | 5855 | 3076 | 2779 | 6100 | | 245 | 3321 | 2779 | 155 | |
| 10 | 6010 | 2460 | 88 | 2372 | 3550 | 127 | 3423 | 13 | 5776 | 3423 | 2353 | 6310 | | 534 | 3957 | 2353 | 234 | |
| 11 | 6000 | 2640 | 95 | 2545 | 3360 | 120 | 3240 | 14 | 5740 | 3240 | 2500 | 6340 | | 600 | 3840 | 2500 | 260 | |
| 12 | 5990 | 2090 | 75 | 2015 | 3900 | 140 | 3760 | 15 | 5688 | 3760 | 1928 | 5980 | | 292 | 4052 | 1928 | 302 | |
| 13 | 5980 | 1880 | 68 | 1812 | 4100 | 147 | 3953 | 16 | 5678 | 3953 | 1725 | 5900 | | 222 | 4175 | 1725 | 302 | |
| 14 | 5970 | 1750 | 63 | 1687 | 4220 | 152 | 4068 | 17 | 5754 | 4068 | 1686 | 5850 | | 96 | 4164 | 1686 | 216 | |
| 15 | 5960 | 2010 | 72 | 1938 | 3950 | 143 | 3807 | 18 | 5819 | 3807 | 2012 | 5880 | | 61 | 3868 | 2012 | 141 | |
| 16 | 6230 | 2240 | 77 | 2163 | 3990 | 138 | 3852 | 19 | 5956 | 3852 | 2104 | 5900 | 56 | | 3796 | 2104 | 274 | |
| 17 | 6280 | 1960 | 67 | 1893 | 4320 | 148 | 4172 | 20 | 5925 | 4172 | 1753 | 5920 | 5 | | 4167 | 1753 | 305 | |
| 18 | 6260 | 1850 | 63 | 1787 | 4410 | 152 | 4258 | 21 | 5906 | 4258 | 1648 | 5780 | 126 | | 4132 | 1648 | 354 | |
| 19 | 6240 | 1760 | 61 | 1699 | 4480 | 154 | 4326 | 22 | 5886 | 4326 | 1560 | 5700 | 186 | | 4140 | 1560 | 354 | |
| 20 | 6230 | 1740 | 60 | 1680 | 4490 | 155 | 4335 | 23 | 5867 | 4335 | 1532 | 5650 | 217 | | 4118 | 1532 | 363 | |
| 21 | 6220 | 1720 | 59 | 1661 | 4500 | 156 | 4344 | 24 | 5877 | 4344 | 1533 | 5620 | 257 | | 4087 | 1533 | 343 | |
| 22 | 6200 | 1680 | 58 | 1622 | 4520 | 157 | 4363 | 25 | 5925 | 4363 | 1562 | 5500 | 425 | | 3938 | 1562 | 275 | |
| 23 | 6280 | 1350 | 46 | 1304 | 4930 | 169 | 4761 | 26 | 5993 | 4761 | 1232 | 5600 | 393 | | 4368 | 1232 | 287 | |
| 24 | 6270 | 1650 | 57 | 1593 | 4620 | 158 | 4462 | 27 | 5968 | 4462 | 1506 | 5550 | 418 | | 4044 | 1506 | 302 | |
| 25 | 6240 | 1280 | 44 | 1236 | 4960 | 171 | 4789 | 28 | 5866 | 4789 | 1077 | 5480 | 386 | | 4403 | 1077 | 374 | |
| 26 | 6210 | 1560 | 54 | 1506 | 4650 | 161 | 4489 | 29 | 5908 | 4489 | 1419 | 5450 | 458 | | 4031 | 1419 | 302 | |
| 27 | 6180 | 1390 | 48 | 1342 | 4790 | 167 | 4623 | 30 | 5976 | 4623 | 1353 | 5410 | 566 | | 4057 | 1353 | 204 | |
| 28 | 6250 | 1070 | 37 | 1033 | 5180 | 178 | 5002 | 31 | 5997 | 5002 | 995 | 5380 | 617 | | 4385 | 995 | 253 | |
| 29 | 6260 | 1220 | 42 | 1178 | 5040 | 173 | 4867 | 1 | 5999 | 4867 | 1132 | 5330 | 669 | | 4198 | 1132 | 261 | |
| 30 | 6230 | 1370 | 47 | 1323 | 4860 | 168 | 4692 | 2 | 5981 | 4692 | 1289 | 4730 | 1251 | | 3441 | 1289 | 249 | |
| 31 | 5920 | 1240 | 45 | 1195 | 4680 | 170 | 4510 | 3 | 5403 | 4510 | 893 | 3240 | 2163 | | 2347 | 893 | 517 | |
| Totals | 189520 | 82230 | 2855 | 79375 | 108850 | 3810 | 105040 | | 180891 | 105040 | 75851 | 178720 | 8198 | 6022 | 102869 | 75851 | 8629 | |
| Acre-feet | 379040 | 164460 | 5710 | 158750 | 217700 | 7620 | 210080 | | 361782 | 210080 | 151702 | 357440 | 16386 | 12044 | 205738 | 151702 | 17258 | |

August Evaporation Charge, Pathfinder Dam to Guernsey Dam, 187 Second-Feet.

AUGUST 1932

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 4, Nebraska Exhibit 417.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | | | | | | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res. | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 5800 | 1420 | 46 | 1374 | 4380 | 141 | 4239 | 4 | 5416 | 4239 | 1177 | 3510 | 1906 | | 2333 | 1177 | 384 | |
| 2 | 5760 | 1020 | 33 | 987 | 4740 | 154 | 4586 | 5 | 4113 | (a)4113 | 0 | 3400 | 713 | | 3400 | 0 | 1647 | |
| 3 | 3480 | 860 | 46 | 814 | 2620 | 141 | 2479 | 6 | 3576 | 2952 | 624 | 3420 | 156 | | 2796 | 624 | | 96 |
| 4 | 3500 | 1350 | 72 | 1278 | 2150 | 115 | 2035 | 7 | 3532 | 2035 | 1497 | 3460 | 72 | | 1963 | 1497 | | 32 |
| 5 | 3500 | 1420 | 76 | 1344 | 2080 | 111 | 1969 | 8 | 3507 | 1969 | 1538 | 3490 | 17 | | 1952 | 1538 | | 7 |
| 6 | 3500 | 980 | 52 | 928 | 2520 | 135 | 2385 | 9 | 3492 | 2385 | 1107 | 3490 | 2 | | 2383 | 1107 | 8 | |
| 7 | 3490 | 680 | 36 | 644 | 2810 | 151 | 2659 | 10 | 3495 | 2659 | 836 | 3510 | | 15 | 2674 | 836 | | 5 |
| 8 | 3490 | 930 | 50 | 880 | 2560 | 137 | 2423 | 11 | 3546 | 2423 | 1123 | 3730 | | 184 | 2607 | 1123 | | 56 |
| 9 | 3480 | 1050 | 56 | 994 | 2430 | 131 | 2299 | 12 | 3370 | 2299 | 1071 | 3970 | | 600 | 2899 | 1071 | 110 | |
| 10 | 3480 | 890 | 48 | 842 | 2590 | 139 | 2451 | 13 | 3462 | 2451 | 1011 | 4270 | | 808 | 3259 | 1011 | 18 | |
| 11 | 3470 | 510 | 28 | 482 | 2960 | 159 | 2801 | 14 | 3791 | 2801 | 990 | 4530 | | 739 | 3540 | 990 | | 321 |
| 12 | 4150 | 640 | 29 | 611 | 3510 | 158 | 3352 | 15 | 4435 | 3352 | 1083 | 4910 | | 475 | 3827 | 1083 | | 285 |
| 13 | 4560 | 730 | 30 | 700 | 3830 | 157 | 3673 | 16 | 4462 | 3673 | 789 | 5000 | | 538 | 4211 | 789 | 98 | |
| 14 | 4570 | 660 | 27 | 633 | 3910 | 160 | 3750 | 17 | 4729 | 3750 | 979 | 5050 | | 321 | 4071 | 979 | | 159 |
| 15 | 4560 | 420 | 17 | 403 | 4140 | 170 | 3970 | 18 | 5007 | 3970 | 1037 | 4890 | 117 | | 3853 | 1037 | | 447 |
| 16 | 5160 | 480 | 17 | 463 | 4680 | 170 | 4510 | 19 | 5002 | 4510 | 492 | 4930 | 72 | | 4438 | 492 | 158 | |
| 17 | 5200 | 790 | 28 | 762 | 4410 | 159 | 4251 | 20 | 4997 | 4251 | 746 | 5050 | | 53 | 4304 | 746 | 203 | |
| 18 | 5190 | 570 | 21 | 549 | 4620 | 166 | 4454 | 21 | 5017 | 4454 | 563 | 5050 | | 33 | 4487 | 563 | 173 | |
| 19 | 5150 | 640 | 23 | 617 | 4510 | 164 | 4346 | 22 | 4986 | 4346 | 640 | 5050 | | 64 | 4410 | 640 | 164 | |
| 20 | 5110 | 600 | 22 | 578 | 4510 | 165 | 4345 | 23 | 4987 | 4345 | 642 | 5050 | | 83 | 4408 | 642 | 123 | |
| 21 | 5120 | 590 | 22 | 568 | 4530 | 165 | 4365 | 24 | 4964 | 4365 | 599 | 5040 | | 76 | 4441 | 599 | 156 | |
| 22 | 5080 | 470 | 17 | 453 | 4610 | 170 | 4440 | 25 | 4929 | 4440 | 489 | 5070 | | 141 | 4581 | 489 | 151 | |
| 23 | 5050 | 390 | 14 | 376 | 4660 | 173 | 4487 | 26 | 4962 | 4487 | 475 | 5020 | | 58 | 4545 | 475 | 88 | |
| 24 | 5030 | 420 | 16 | 404 | 4610 | 171 | 4439 | 27 | 5388 | 4439 | 949 | 4960 | 428 | | 4011 | 949 | | 358 |
| 25 | 5060 | 510 | 19 | 491 | 4550 | 168 | 4382 | 28 | 5244 | 4382 | 862 | 4890 | 354 | | 4028 | 862 | | 184 |
| 26 | 5030 | 390 | 14 | 376 | 4640 | 173 | 4467 | 29 | 5146 | 4467 | 679 | 4820 | 326 | | 4141 | 679 | | 116 |
| 27 | 5000 | 350 | 13 | 337 | 4650 | 174 | 4476 | 30 | 5036 | 4476 | 560 | 4960 | 76 | | 4400 | 560 | | 36 |
| 28 | 5160 | 440 | 16 | 424 | 4720 | 171 | 4549 | 31 | 5004 | 4549 | 455 | 4820 | 184 | | 4365 | 455 | 156 | |
| 29 | 5170 | 370 | 13 | 357 | 4800 | 174 | 4626 | 1 | 4724 | 4626 | 98 | 4770 | | 46 | 4672 | 98 | 446 | |
| 30 | 4580 | 280 | 11 | 269 | 4300 | 176 | 4124 | 2 | 4549 | 4124 | 425 | 4620 | | 71 | 4195 | 425 | 31 | |
| 31 | 4530 | 340 | 14 | 326 | 4190 | 173 | 4017 | 3 | 4489 | 4017 | 472 | 4550 | | 61 | 4078 | 472 | 41 | |
| Totals | 141410 | 21190 | 926 | 20264 | 120220 | 4871 | 115349 | | 139357 | 115349 | 24008 | 139280 | 4423 | 4346 | 115272 | 24008 | 4155 | 2102 |
| Acre-feet | 282820 | 42380 | 1852 | 40528 | 240440 | 9742 | 330698 | | 278714 | 230698 | 48016 | 278560 | 8846 | 8692 | 230544 | 48016 | 8310 | 4204 |

(a) Excess carried into following day.

September Evaporation Charge,
Pathfinder Dam to Guernsey Dam,
138 Second-Feet.

SEPTEMBER 1932

NORTH PLATTE RIVER, PATHFINDER DAM TO GUERNSEY DAM

SEGREGATION DIRECT FLOW AND STORED WATER

Corrected For River Channel Evaporation Losses

R. I. Meeker, Consulting Engineer, M. E. Ball, Assistant Engineer

VALUES IN SECOND-FEET

Sheet 5, Nebraska Exhibit 417.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PATHFINDER RESERVOIR OUTFLOW | | | | | | | | | | | | | | | | River Loss or Gain | |
| MONTH | DIRECT FLOW | | | | STORED WATER | | | | GUERNSEY RESERVOIR INFLOW | | | | GUERNSEY RESERVOIR OUTFLOW | | | | Path. D.-Guern. D. | |
| | Total Outflow Nebr. Ex. | Gross Neb. Ex. | Evap. Charge | Net at Guernsey Res. | Gross Col. 2-3 | Evap. Charge | Net at Guernsey Res | 3 Day Lag | Total Inflow Nebr. Ex. | Stored Water Col. 8 | Direct Flow Col. 10-11 | Total Outflow Nebr. Ex. | | Re-storage Guernsey Col. 10-13 | Guernsey Stor. Rel. Col. 13-10 | Stored Water Col. 11-14 or Col. 11+15 | Direct Flow Col. 13-16 | Loss — Col. 2-10 | Gain + Col. 10-2 |
| 1 | 4500 | 330 | 10 | 320 | 4170 | 128 | 4042 | 4 | 4451 | 4042 | 409 | 4530 | | | 79 | 4121 | 409 | 49 | |
| 2 | 4480 | 390 | 12 | 378 | 4090 | 126 | 3964 | 5 | 4436 | 3964 | 472 | 4530 | | | 94 | 4058 | 472 | 44 | |
| 3 | 4460 | 290 | 9 | 281 | 4170 | 129 | 4041 | 6 | 4431 | 4041 | 390 | 4530 | | | 99 | 4140 | 390 | 29 | |
| 4 | 4430 | 120 | 4 | 116 | 4310 | 134 | 4176 | 7 | 4421 | 4176 | 245 | 4530 | | | 109 | 4285 | 245 | 9 | |
| 5 | 4410 | 310 | 10 | 300 | 4100 | 128 | 3972 | 8 | 4409 | 3972 | 437 | 4510 | | | 101 | 4073 | 437 | 1 | |
| 6 | 4480 | 420 | 13 | 407 | 4060 | 125 | 3935 | 9 | 4419 | 3935 | 484 | 4510 | | | 91 | 4026 | 484 | 61 | |
| 7 | 4460 | 190 | 6 | 184 | 4270 | 132 | 4138 | 10 | 4490 | 4138 | 352 | 4510 | | | 20 | 4158 | 352 | | 30 |
| 8 | 4540 | 100 | 3 | 97 | 4440 | 135 | 4305 | 11 | 3830 | 3830 | 0 | 4510 | | | 680 | 4510 | 0 | 710 | |
| 9 | 3510 | 220 | 9 | 211 | 3290 | 129 | 3161 | 12 | 4031 | 3636 | 395 | 4440 | | | 409 | 4045 | 395 | | 521 |
| 10 | 3950 | 210 | 7 | 203 | 3740 | 131 | 3609 | 13 | 3961 | 3609 | 352 | 4250 | | | 289 | 3898 | 352 | | 11 |
| 11 | 3930 | 160 | 6 | 154 | 3770 | 132 | 3638 | 14 | 3964 | 3638 | 326 | 4090 | | | 126 | 3764 | 326 | | 34 |
| 12 | 3900 | 50 | 2 | 48 | 3850 | 136 | 3714 | 15 | 3929 | 3714 | 215 | 4030 | | | 101 | 3815 | 215 | | 29 |
| 13 | 3890 | 70 | 2 | 68 | 3820 | 136 | 3684 | 16 | 3800 | 3684 | 116 | 3830 | | | 30 | 3714 | 116 | 90 | |
| 14 | 3630 | 100 | 4 | 96 | 3530 | 134 | 3396 | 17 | 3572 | 3396 | 176 | 3640 | | | 68 | 3464 | 176 | 58 | |
| 15 | 3520 | 110 | 4 | 106 | 3410 | 134 | 3276 | 18 | 3539 | 3276 | 263 | 3600 | | | 61 | 3337 | 263 | | 19 |
| 16 | 3500 | 260 | 10 | 250 | 3240 | 128 | 3112 | 19 | 3497 | 3112 | 385 | 3580 | | | 83 | 3195 | 385 | 3 | |
| 17 | 3480 | 160 | 6 | 154 | 3320 | 132 | 3188 | 20 | 3455 | 3188 | 267 | 3550 | | | 95 | 3283 | 267 | 25 | |
| 18 | 3470 | 280 | 11 | 269 | 3190 | 127 | 3063 | 21 | 3461 | 3063 | 398 | 3640 | | | 179 | 3242 | 398 | 9 | |
| 19 | 3450 | 250 | 10 | 240 | 3200 | 128 | 3072 | 22 | 3447 | 3072 | 375 | 3710 | | | 263 | 3335 | 375 | 3 | |
| 20 | 3520 | 160 | 6 | 154 | 3360 | 132 | 3228 | 23 | 3479 | 3228 | 251 | 3600 | | | 121 | 3349 | 251 | 41 | |
| 21 | 3510 | 310 | 12 | 298 | 3200 | 126 | 3074 | 24 | 3522 | 3074 | 448 | 3490 | | 32 | | 3042 | 448 | | 12 |
| 22 | 3490 | 220 | 9 | 211 | 3270 | 129 | 3141 | 25 | 3561 | 3141 | 420 | 3380 | | 181 | | 2960 | 420 | | 71 |
| 23 | 3530 | 210 | 8 | 202 | 3220 | 130 | 3190 | 26 | 3546 | 3190 | 356 | 3220 | | 326 | | 2864 | 356 | | 16 |
| 24 | 3500 | 290 | 11 | 279 | 3210 | 127 | 3083 | 27 | 3593 | 3083 | 510 | 2960 | | 633 | | 2450 | 510 | | 93 |
| 25 | 3450 | 410 | 16 | 394 | 3040 | 122 | 2918 | 28 | 3360 | 2918 | 442 | 2680 | | 680 | | 2238 | 442 | 90 | |
| 26 | 3420 | 380 | 15 | 365 | 3040 | 123 | 2917 | 29 | 3216 | 2917 | 299 | 2390 | | 826 | | 2091 | 299 | 204 | |
| 27 | 2790 | 420 | 21 | 399 | 2370 | 117 | 2253 | 30 | 2684 | 2253 | 431 | 1830 | | 854 | | 1399 | 431 | 106 | |
| 28 | 1700 | 250 | 20 | 230 | 1450 | 118 | 1332 | 1 | 1937 | 1332 | 605 | 1060 | | 877 | | 455 | 605 | | 237 |
| 29 | 720 | 460 | 88 | 372 | 260 | 50 | 210 | 2 | 1426 | 210 | 1216 | 1103 | (a) 113 | 210 | | 0 | 1103 | | 706 |
| 30 | 590 | 530 | 124 | 406 | 60 | 14 | 46 | 3 | 1118 | 46 | 1072 | 1103 | | 15 | | 31 | 1072 | | 528 |
| 31 | | | | | | | | | | | | | | | | | | | |
| Totals | 106210 | 7660 | 468 | 7192 | 98550 | 3672 | 94878 | | 106985 | 94878 | 12107 | 105336 | (a) 113 | 4634 | 3098 | 93342 | 11994 | 1532 | 2307 |
| Acre-feet | 212420 | 15320 | 936 | 14384 | 197100 | 7344 | 189756 | | 213970 | 189756 | 24214 | 210672 | 226 | 9268 | 6196 | 186684 | 23988 | 3064 | 4614 |

* Excess carried into following day.

(a) Direct flow stored in Guernsey Reservoir.

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**Nebraska Exhibit 429**

**BEFORE THE**
**STATE ENGINEER OF WYOMING.**

191

| | |
|---|---|
| Patrick | Cirenes |
| Mead | Margold |
| Roddis | Walters |
| Thomas | Burlew |

| | |
|---|---|
| IN THE MATTER OF PERMIT NO. 18488 | Petition of the Secretary of the Interior of the United States. |

Comes now the Secretary of the Interior of the United States of America, and respectfully avers:

I.

The Secretary of the Interior of the United States of America is the applicant named in that certain application filed in the office of the State Engineer of Wyoming, on or about the 6th day of December, A. D. 1904, for the construction of the Casper Canal, which said application was accepted and assigned temporary filing No. 5-3-83, in the records of the office of said State Engineer.

II.

The said original application, temporary filing No. 5-3-83, was returned by the Honorable Edwin W. Burritt, State Engineer of Wyoming, on the 5th day of July, A. D. 1934, for correction, to Harry W. Bashore, Construction Engineer, United States Bureau of Reclamation, Casper, Wyoming, said person and bureau acting and functioning under the jurisdiction of the Secretary of the Interior of the United States of America. In con-

formity to the instructions of said State Engineer and pursuant thereto, the said original application was corrected and refiled in the office of the State Engineer of Wyoming, on or about the 27th day of July, A. D., 1934.

III.

The said original application, temporary filing No. 5-3-83, as corrected, described certain arid lands in Natrona County, Wyoming, within the Casper-Alcova Federal Reclamation Project, which project was approved for construction under the provisions of the act of June 16, 1933 (48 Stat., 195), commonly known as the National Industrial Recovery Act, by the Honorable, the President of the United States, on the 28th day of July, A. D. 1933, and funds for the construction thereof, on the 1st day of August, A. D. 1933, were allotted by the Federal Emergency Administrator of Public Works, to the United States Bureau of Reclamation, for the construction of said project under the Act of June 17, 1902 (32 Stat. 388), as amended and supplemented, commonly known as the Reclamation Law.

IV.

On the 14th day of September A. D., 1934, the Honorable Edwin W. Burritt, State Engineer of Wyoming, granted said original application as corrected, and recorded the same in the records of his office, as Permit No. 18488, with endorsements, among others as follows:

"THIS PERMIT IS ISSUED SUBJECT TO ALL RIGHTS WHICH HAVE VESTED AND ACCRUED UNDER THE LAWS OF WYOMING, AS OF THIS DATE, TO THE USE OF THE WATERS OF THE NORTH PLATTE RIVER AND ITS TRIBUTARIES

ABOVE THE PATHFINDER DAM; THIS PERMIT SHALL BE LIMITED TO THE IRRIGATION OF NOT TO EXCEED 66,000 ACRES OF LAND; SAID ACREAGE TO BE SELECTED FROM THE LANDS DESCRIBED IN THE CORRECTED APPLICATION."

V.

Since the granting of said Permit No. 18488 with the endorsements quoted in Paragraph IV hereof, further and additional investigations of the quantity of water flowing in the North Platte River and its tributaries in Wyoming available for the irrigation of the lands of the Casper-Alcova Project, under said Permit No. 18488, conditioned as described in Paragraph IV hereof, have been made under the direction of the Federal Emergency Administrator of Public Works and, as a result of said investigations, the determination has been made to construct said Casper-Alcova Project in two units, and the United States Bureau of Reclamation has been instructed to proceed accordingly.

VI.

Accompanying the application to correct temporary filing No. 5-3-83, and as a part thereof, there were filed in the office of the State Engineer of Wyoming, on or about the 27th day of July, A. D. 1934, the following documents:

1 set of tracings of a map showing the legal subdivisions and estimated irrigable area thereof described in the corrected application.

1 print of the map above described.

1 set of prints of the legal subdivisions and estimated irrigable area thereof.

The said documents by this reference are made a part of this petition the same as if they were filed herewith.

VII.

The lands described in the documents to which reference is made in Paragraph VI hereof, and particularly, the irrigable area thereof, comprise the Casper-Alcova Federal Reclamation Project as approved and authorized for construction, as alleged in Paragraph III hereof.

VIII.

The first unit of said Casper-Alcova Project, which it is proposed to construct, embraces certain of the lands described in the application correcting temporary filing No. 5-3-83, and the documentary evidence accompanying the same, all of which was filed in the office of the State Engineer, on or about the 27th day of July, A. D. 1934, and which lands of said first unit, the irrigable area of which is about 40,580.5 acres, are particularly described in Exhibit "A" (Sheets 1-45) attached hereto, and by this reference made a part hereof the same as if set out herein at length.

IX.

The second unit of the Casper-Alcova Project, the irrigable area of which is about 41,683 acres, will comprise the remaining lands particularly described in the application to correct temporary filing No. 5-3-83, and the documentary evidence filed therewith, and which are not particularly described in Exhibit "A" attached hereto.

The construction of the second unit of said Casper-Alcova Project will follow the completion of the construction of the first unit of said project and the irriga-

tion thereof, if it is found that the quantity of water flowing in the North Platte River and its tributaries in Wyoming, is sufficient, with a supplemental supply of water from the Seminoe Reservoir, to satisfy the priority of the right to divert the natural flow of the North Platte River granted and recognized under the laws of Wyoming for the irrigation of the first and second units of said Casper-Alcova Project.

A particular description of the lands comprising the second unit of said project will be filed with the State Engineer of Wyoming prior to the commencement of the construction thereof.

X.

The irrigable area of the first unit stated in Paragraph VIII hereof to be 40,580.5 acres, and the irrigable area of the second unit stated in Paragraph IX hereof to be 41,683 acres, are estimates which will be corrected after the completion of the irrigation works common to the project as a whole and the irrigation works constructed to serve the first and second units of the project, a proper showing of which corrections will be filed in the office of the State Engineer of Wyoming after the correct irrigable area of each unit of the project has been determined.

XI.

The United States hereby gives notice that neither the filing of this petition nor any statement herein is to estop the United States in litigation affecting the waters of the North Platte River and its tributaries from making any claim to the ownership of said waters that may seem

justified by the Attorney General of the United States, whether or not such claim is consistent with the tenor of this petition or with any statements made herein.

WHEREFORE, your petitioner, the Secretary of the Interior of the United States of America, prays that:

(1) The application correcting temporary filing No. 5-3-83 be accepted and recognized by the State Engineer of Wyoming as an original application to divert and apply to the beneficial uses therein stated the natural flow of the North Platte river and its tributaries in Wyoming, and that the date of filing the same in the office of the State Engineer of Wyoming be fixed as the 27th day of July A. D., 1934, and the date of approval thereof by the State Engineer be recognized as the 14th day of September A. D., 1934.

(2) The endorsements on Permit No. 18488, quoted in Paragraph IV hereof, be removed from said permit and expunged therefrom and from the official records in the office of the State Engineer of Wyoming.

(3) Permit No. 18488 be recognized as a permit, with a priority date of the 27th day of July A. D., 1934, granted to the United States of America to divert and apply the natural flow of the North Platte river and its tributaries in Wyoming to the beneficial uses stated in said corrected application, and in particular for the irrigation of the arid lands in Natrona County, Wyoming, comprising the Casper-Alcova Federal Reclamation Project, and each unit thereof, said lands to be selected from the lands particularly described in the application correcting temporary filing No. 5-3-83, and found to be irrigable under the works of said Casper-Alcova Project or any unit thereof.

(4) The State Engineer of Wyoming authorizes the construction of said Casper-Alcova Project under Permit No. 18488 in two units.

(5) The permit requires the construction of the first unit of said Casper-Alcova Project to be commenced on or before the 14th day of September A. D., 1935.

(6) The date required for the completion of the ditches and other distributing works of the first unit of the said Casper-Alcova Project be fixed as the 14th day of September A. D., 1939.

(7) The date required to complete the application of water to the beneficial uses stated in the application for Permit No. 18488 on the first unit of said Casper-Alcova Project be fixed as the 14th day of September A. D., 1944.

(8) Final proof of appropriation of water to beneficial use on the first unit of said project be required to be submitted to the State Engineer of Wyoming on or before the 14th day of September A. D., 1949.

(9) The construction of the irrigation works common to both units of said Casper-Alcova Project to be accepted and recognized by the State Engineer of Wyoming as the commencement of construction of the second unit of said project, and that the completion of ditches and other distributing works peculiar to the second unit of said project, be completed within such extensions of time as may be allowed by the State Engineer of Wyoming from and after the 14th day of September A. D., 1934, and that the application of water to the beneficial uses stated in the application for Permit No. 18488 on the second unit of said Casper-Alcova Project, be completed

within such extensions of time as may be allowed by the State Engineer of Wyoming from and after the 14th day of September A. D., 1944, and that final proof of appropriation of water to beneficial use on the second unit of said Casper-Alcova Project be submitted to the State Engineer of Wyoming, within such extensions of time as may be allowed by the State Engineer of Wyoming, from and after the 14th day of September A. D., 1949.

Dated at the City of Washington, in the District of Columbia, this 21st day of February, A. D., 1935.

(Signed) Harold L. Ickes
Secretary of the Interior of the
United States of America.

CITY OF WASHINGTON }
DISTRICT OF COLUMBIA } ss.

I hereby certify that the foregoing petition was signed in my presence and sworn to before me by Harold L. Ickes this 26th day of February, A. D., 1935.

(Signed) W. H. Richard
Notary Public

My commission expires August 10, 1939.
(SEAL)

STATE OF WYOMING }
OFFICE OF STATE ENGINEER } ss.

This is to certify that I have examined the foregoing petition, and do hereby grant the prayer of the same in each particular thereof.

WITNESS my hand this 21st day of March A. D., 1935.

(Signed) Edwin W. Burritt,
State Engineer.

THE STATE OF WYOMING }
} ss.
STATE ENGINEER'S OFFICE }

This instrument was received and filed for record on the 21st day of March, A. D., 1935, at 4:50 o'clock P. M., and duly recorded in Book 8 of Miscellaneous Records, on page 191.

Edwin W. Burritt,
State Engineer.

Fee $11.35 paid.

(Exhibit "A" containing land description which was attached to this petition is filed in back of Miscellaneous Records, Book No. 8.)

CERTIFICATION.

UNITED STATES OF AMERICA }
} ss.
STATE OF WYOMING }

I, EDWIN W. BUPRITT, of Cheyenne, Wyoming, the ruly appointed, qualified and acting State Engineer in and for the State of Wyoming, do hereby certify that the above and foregoing is a full, true and complete copy of Petition of the Secretary of the Interior of the United States of America in the matter of Permit No. 18488 in Book 8 of Miscellaneous Records on pages 191 to 196, inclusive, so full and complete as the original thereof appears on file and of record in my office except that it does not contain the land descriptions filed as Exhibit A with this petition.

IN WITNESS WHEREOF I have hereunto set my hand in the City of Cheyenne, in the State of Wyoming, on this 31st day of July, 1935.

(Signed) Edwin W. Burritt,
State Engineer.

## PARAGRAPH 30 OF FINDINGS OF FACT BY UNITED STATES DISTRICT COURT IN UNITED STATES V. TILLEY FOUND ON PAGE 20, NEBRASKA EXHIBIT 593.

30. It was stipulated by Plaintiff and the District that for the purpose of this suit the District contains about, but not exceeding, 60,000 acres of irrigable lands; that in addition to the acreage within the District, about 3,000 acres without the District are irrigable from the District's canal under what are commonly referred to as "Preferred Rights"; that all these lands, aggregating about 63,000 acres, are covered by valid appropriations under what are known as Docket No. 918 and Application No. 660 in the files and records of the Bureau of Irrigation of the State of Nebraska, where the lands are described in detail, and that the appropriation covering the lands under Docket No. 918 has a priority date of September 16, 1887, and that the appropriation covering the lands under Application No. 660 has a priority date of April 14, 1902.

Sheet 1, Wyoming Exhibit No. 88

NORTH PLATTE RIVER

Elmer K. Nelson, C. E.

SEASON OF 1931-1932. SUMMARY OF STREAM FLOWS AND CANAL DIVERSIONS—IN ACRE-FEET 1939

SHEET 1—1932 SECTION: BELOW WHALEN TO WYOMING NEBRASKA LINE

COMPILED FROM NEBRASKA HYDROGRAPHIC REPORTS, BUREAU OF RECLAMATION RECORDS, UNPUBLISHED, AND WYOMING STATE ENGINEER AND WATER COMMISSIONERS REPORTS

| LINE DESCRIPTION | Oct. | Nov. | Dec. | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | TOTALS Seasonal | TOTALS Oct.-April | TOTALS May-Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WATER SUPPLY | | | | | | | | | | | | | | | |
| RIVER BELOW WHALEN | 2560 | 2980 | 4152 | 5800 | 3840 | 6770 | 3370 | 43810 | 126590 | 143690 | 95600 | 53030 | 492192 | 29472 | 462720 |
| Tributaries—Below Whalen to Wyo.-Nebr. Line Net... | 14093 | 12491 | 18006 | 17487 | 17630 | 17444 | 17557 | 18556 | 13590 | 10010 | 9645 | 10580 | 177089 | 114708 | 62381 |
| Tributaries | 13490 | 11700 | 17514 | 17180 | 17400 | 17130 | 17170 | 16538 | 10125 | 5030 | 3795 | 4890 | 151962 | 111584 | 40378 |
| Return Flows, Tributary | 603 | 791 | 492 | 307 | 230 | 314 | 387 | 2018 | 3465 | 4980 | 5850 | 5690 | 25127 | 3124 | 22003 |
| Canal Wastes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 519 | 553 | 473 | 808 | 1045 | 3398 | 0 | 3398 |
| Total Measured River Supply | 16653 | 15471 | 22158 | 23287 | 21470 | 24214 | 20927 | 62366 | 140180 | 153700 | 105245 | 63610 | 669281 | 144180 | 525101 |
| Apparent Net Channel Accretion | 14797 | 7129 | 4142 | 3813 | 3630 | 886 | 3673 | -7138 | -6169 | 5562 | 14595 | 17066 | 61987 | 38070 | 23917 |
| Net Sectional Accretion | 28890 | 19620 | 22148 | 21300 | 21260 | 18330 | 21230 | 11418 | 8421 | 15572 | 24240 | 27646 | 239075 | 152778 | 86297 |
| Total Available Supply | 31450 | 22600 | 26300 | 27100 | 25100 | 25100 | 24600 | 55228 | 134011 | 159262 | 119840 | 80676 | 731267 | 182250 | 549017 |
| TRIBUTARIES | | | | | | | | | | | | | | | |
| Laramie River | 4560 | 6010 | 7440 | 7690 | 8740 | 8920 | 14200 | 13000 | 2670 | 1740 | 830 | 1040 | 76840 | 57560 | 19280 |
| Eagle Power Return Less Laramie River Diversion... | 5810 | 2950 | 8374 | 8568 | 7620 | 6240 | 1680 | 1958 | 5880 | 1940 | 605 | 1690 | 53315 | 41242 | 12073 |
| Whitewhide Creek | 3120 | 2740 | 1700 | 922 | 1040 | 1970 | 1290 | 1580 | 1575 | 1350 | 2360 | 2160 | 21807 | 12782 | 9025 |
| RETURN FLOWS | | | | | | | | | | | | | | | |
| Cherry Creek Drain | | | | | | | | | 708 | 2300 | 3000 | 3400 | 3290 | 12698 | 0 | 12698 |
| Custer Drain | 603 | 791 | 492 | 307 | 230 | 314 | 387 | | 1310 | 1165 | 1980 | 2450 | 2400 | 12429 | 3124 | 9305 |
| CANAL WASTES | | | | | | | | | | | | | | | |
| Cherry Creek Lateral Waste | | | | | | | | | 62 | 87 | 123 | 121 | 140 | 533 | 0 | 533 |
| Canal Draw | | | | | | | | | 61 | 71 | 65 | 121 | 160 | 478 | 0 | 478 |
| Canal Point | | | | | | | | | 0 | 10 | 70 | 222 | 50 | 352 | 0 | 352 |
| Allen Drain | | | | | | | | | 62 | 60 | 62 | 65 | 120 | 369 | 0 | 369 |
| Arnold Drain | | | | | | | | | 334 | 325 | 153 | 279 | 575 | 1666 | 0 | 1666 |
| DIVERSIONS | | | | | | | | | | | | | | | |
| Arbank Canal | | | | | | | | | 137 | 392 | 337 | 313 | 178 | 1357 | 0 | 1357 |
| Bourne Canal | | | | | | | | | 1230 | 3440 | 4170 | 3940 | 3120 | 15900 | 0 | 15900 |
| Carlton Canal | | | | | | | | | 592 | 1690 | 1410 | 1090 | 625 | 5407 | 0 | 5407 |
| Circle Ranch Canal | | | | | | | | | 103 | 2505 | 2510 | 2185 | 930 | 8233 | 0 | 8233 |
| Farrington Canal | | | | | | | | | 607 | 1465 | 2070 | 1815 | 1560 | 7517 | 0 | 7517 |
| North Platte Canal | | | | | | | | | 184 | 2420 | 2610 | 2760 | 1400 | 9774 | 0 | 9774 |
| Orrows Ditch | | | | | | | | | 24 | 177 | 178 | 180 | 100 | 659 | 0 | 659 |
| Morris No. 1 Ditch | | | | | | | | | | | | | | | | |
| Ranch Canal | | | | | | | | | 0 | 1160 | 1560 | 1330 | 698 | 4748 | 0 | 4748 |
| Mitchell Canal | 1950 | | | | | | | | 1570 | 10315 | 12490 | 11735 | 8810 | 46870 | 1950 | 44920 |
| TOTAL DIVERSIONS—NET | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 3928 | 23011 | 27262 | 24540 | 16376 | 97067 | 1950 | 95117 |
| RIVER AT STATE LINE | 29500 | 22600 | 26300 | 27100 | 25100 | 25100 | 24600 | 51300 | 111000 | 132000 | 95300 | 64300 | 634200 | 180300 | 453900 |

Tightly Bound

Sheet 1, Wyoming Exhibit No. 90
Elmer K. Nelson, C. E.

NORTH PLATTE RIVER

SEASON OF 1933 - 1934. SUMMARY OF STREAM FLOWS AND CANAL DIVERSIONS—IN ACRE-FEET 1939

SHEET 1 — 1934 SECTION: BELOW WHALEN TO WYOMING NEBRASKA LINE

COMPILED FROM NEBRASKA HYDROGRAPHIC REPORTS, BUREAU OF RECLAMATION RECORDS, UNPUBLISHED, AND WYOMING STATE ENGINEER AND WATER COMMISSIONERS REPORTS

| LINE DESCRIPTION | Oct. | Nov. | Dec. | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | TOTALS May-Sept. Seasonal | TOTALS Oct.-April | TOTALS May-Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WATER SUPPLY | | | | | | | | | | | | | | | |
| RIVER BELOW WHALEN | 8860 | 6990 | 8740 | 5740 | 8757 | 11630 | 4390 | 46930 | 45436 | 34390 | 5328 | 2620 | 189811 | 55107 | 134704 |
| Tributaries—Below Whalen to Wyo.-Nebr. Line Net | 12229 | 15844 | 17046 | 14845 | 10677 | 12323 | 8997 | 5913 | 12200 | 10570 | 6230 | 13085 | 139959 | 91961 | 47998 |
| Tributaries | 11430 | 15130 | 16370 | 14230 | 10310 | 11930 | 8640 | 5179 | 10952 | 9848 | 4800 | 12078 | 130897 | 88040 | 42857 |
| Return Flows, Tributary | 799 | 714 | 676 | 615 | 367 | 393 | 357 | 734 | 1248 | 722 | 1430 | 1007 | 9062 | 3921 | 5141 |
| Canal Wastes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 186 | 145 | 130 | 140 | 151 | 752 | 0 | 752 |
| Total Measured River Supply | 21089 | 22834 | 25786 | 20585 | 19434 | 23953 | 13387 | 52843 | 57636 | 44960 | 11558 | 15705 | 329770 | 147608 | 182702 |
| Apparent Net Channel Accretion | 18881 | 12036 | 9624 | 9675 | 6086 | 9107 | 7895 | -3549 | 13244 | 7361 | 15639 | 13153 | 119152 | 73304 | 45848 |
| Net Sectional Accretion | 31110 | 27880 | 26670 | 24520 | 16763 | 21430 | 16892 | 2364 | 25444 | 17931 | 21869 | 26238 | 259111 | 165265 | 93846 |
| Total Available Supply | 39970 | 34870 | 35410 | 30260 | 25520 | 33060 | 21282 | 49294 | 70880 | 52321 | 27197 | 28858 | 448922 | 220372 | 228550 |
| TRIBUTARIES | | | | | | | | | | | | | | | |
| Laramie River | 2820 | 3730 | 4980 | 6380 | 4670 | 6340 | 4690 | 944 | 426 | 522 | 250 | 532 | 36284 | 33610 | 2674 |
| Lingle Power Return Less Laramie River Diversion | 6700 | 9790 | 10040 | 6560 | 4640 | 4360 | 2760 | 3963 | 7295 | 8836 | 4074 | 10921 | 79939 | 44850 | 35089 |
| Rawhide Creek | 1910 | 1610 | 1350 | 1290 | 1000 | 1230 | 1190 | 272 | 3231 | 490 | 476 | 625 | 14674 | 9580 | 5094 |
| RETURN FLOWS | | | | | | | | | | | | | | | |
| Cherry Creek Drain | | | | | | | | 486 | 720 | 434 | 754 | 674 | 3068 | 0 | 3068 |
| Katzer Drain | 799 | 714 | 676 | 615 | 367 | 393 | 357 | 248 | 528 | 288 | 676 | 338 | 5994 | 3921 | 2073 |
| CANAL WASTES | | | | | | | | | | | | | | | |
| Sand Draw | | | | | | | | 60 | 65 | 63 | 79 | 67 | 334 | 0 | 334 |
| Sand Point | | | | | | | | | | | | | | | |
| Pullen Drain | | | | | | | | 61 | 60 | 61 | 61 | 60 | 303 | 0 | 303 |
| Arnold Drain | | | | | | | | 65 | 20 | 6 | 0 | 24 | 115 | 0 | 115 |
| DIVERSIONS | | | | | | | | | | | | | | | |
| Burbank Canal | | | | | | | | 260 | 180 | 147 | 48 | 151 | 786 | 0 | 786 |
| Lucerne Canal | | | | | | | | 3382 | 3092 | 3007 | 3201 | 1976 | 14658 | 0 | 14658 |
| Grattan Canal | | | | | | | | 744 | 841 | 464 | 1129 | 1103 | 4281 | 0 | 4281 |
| Rock Ranch Canal | | | | | | | | 2126 | 2231 | 2557 | 1997 | 2456 | 11367 | 0 | 11367 |
| Torrington Canal | | | | | | | | 1406 | 1396 | 819 | 1716 | 1466 | 6803 | 0 | 6803 |
| North Platte Canal | | | | | | | | 2102 | 1956 | 2452 | 2791 | 1864 | 11165 | 0 | 11165 |
| Narrows Ditch | | | | | | | | 12 | 14 | 0 | 10 | 67 | 103 | 0 | 103 |
| Ferris No. 1 Ditch | | | | | | | | | | | | | | | |
| French Canal | | | | | | | | 1109 | 466 | 494 | 545 | 575 | 3189 | 0 | 3189 |
| Mitchell Canal | | | | | | | 3162 | 7799 | 9039 | 4961 | 6420 | 5641 | 37022 | 3162 | 33860 |
| TOTAL DIVERSIONS—NET | | | | | | | 3162 | 18754 | 19070 | 14771 | 17717 | 15148 | 88622 | 3162 | 85460 |
| RIVER AT STATE LINE | 39970 | 34870 | 35410 | 30260 | 25520 | 33060 | 16120 | 30540 | 51810 | 37550 | 9480 | 13710 | 360300 | 217210 | 143090 |

Sheet 1, Wyoming Exhibit No. 92

SHEET 1 — 1936 NORTH PLATTE RIVER Elmer K. Nelson, C. E.

SEASON OF 1935 - 1936. SUMMARY OF STREAM FLOWS AND CANAL DIVERSIONS—IN ACRE-FEET 1939

SECTION: BELOW WHALEN TO WYOMING NEBRASKA LINE

COMPILED FROM NEBRASKA HYDROGRAPHIC REPORTS, BUREAU OF RECLAMATION RECORDS, UNPUBLISHED, AND WYOMING STATE ENGINEER AND WATER COMMISSIONERS REPORTS

| LINE DESCRIPTION | Oct. | Nov. | Dec. | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | TOTALS Seasonal | TOTALS Oct.-April | TOTALS May-Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WATER SUPPLY | | | | | | | | | | | | | | | |
| RIVER BELOW WHALEN | 3560 | 153 | 1000 | 710 | 690 | 2690 | 2370 | 86740 | 79610 | 90690 | 49960 | 12670 | 332220 | 12550 | 319670 |
| Tributaries—Below Whalen to Wyo.-Nebr. Line Net | 15921 | 16070 | 16726 | 16677 | 15788 | 17275 | 17802 | 11133 | 18270 | 12401 | 13173 | 18270 | 189506 | 116259 | 73247 |
| Tributaries | 14924 | 15285 | 16270 | 16248 | 15438 | 16816 | 17230 | 10070 | 16230 | 10862 | 10743 | 15980 | 176096 | 112211 | 63885 |
| Return Flows, Tributary | 997 | 785 | 456 | 429 | 350 | 459 | 572 | 1063 | 2040 | 1539 | 2430 | 2290 | 13410 | 4048 | 9362 |
| Canal Wastes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 274 | 50 | 0 | 16 | 46 | 386 | 0 | 386 |
| Total Measured River Supply | 19481 | 17600 | 17726 | 17387 | 16478 | 19965 | 20172 | 97873 | 97880 | 103091 | 63133 | 30940 | 521726 | 128809 | 392917 |
| Apparent Net Channel Accretion | 18111 | 10351 | 8395 | 6143 | 4622 | 5336 | 3430 | -7946 | 5224 | 3870 | 13892 | 20843 | 92265 | 56387 | 35878 |
| Net Sectional Accretion | 34032 | 26421 | 25121 | 22820 | 20410 | 22610 | 21232 | 3187 | 23494 | 16271 | 27065 | 39118 | 281781 | 172646 | 109135 |
| Total Available Supply | 37592 | 27951 | 26121 | 23530 | 21100 | 25300 | 23602 | 89927 | 103104 | 106961 | 77025 | 51788 | 614001 | 185196 | 428805 |
| TRIBUTARIES | | | | | | | | | | | | | | | |
| Laramie River | 3340 | 5080 | 4550 | 5790 | 5670 | 6120 | 12150 | 5260 | 8800 | 1030 | 803 | 1410 | 60003 | 42700 | 17303 |
| Lingle Power Return Less Laramie River Diversion | 10590 | 9340 | 10620 | 9720 | 9240 | 9770 | 1000 | 3740 | 6180 | 8890 | 8740 | 12970 | 100800 | 60280 | 40520 |
| Rawhide Creek | 994 | 865 | 1100 | 738 | 528 | 926 | 4080 | 1070 | 1250 | 942 | 1200 | 1600 | 15293 | 9231 | 6062 |
| RETURN FLOWS | | | | | | | | | | | | | | | |
| Cherry Creek Drain | 625 | 413 | 224 | 214 | 171 | 238 | 282 | 553 | 1020 | 841 | 1360 | 1250 | 7191 | 2167 | 5024 |
| Katzer Drain | 372 | 372 | 232 | 215 | 179 | 221 | 290 | 510 | 1020 | 698 | 1070 | 1040 | 6219 | 1881 | 4338 |
| CANAL WASTES | | | | | | | | | | | | | | | |
| Sand Draw | | | | | | | | | | | | | | | |
| Sand Point | | | | | | | | | | | | | | | |
| Pullen Drain | | | | | | | | | | | | | | | |
| Arnold Drain | | | | | | | | 274 | 50 | 0 | 16 | 46 | 386 | 0 | 386 |
| DIVERSIONS | | | | | | | | | | | | | | | |
| Burbank Canal | | | | | | | | 179 | 248 | 182 | 113 | 24 | 746 | 0 | 746 |
| Lucerne Canal | | | | | | | | 3923 | 3709 | 3941 | 3909 | 3471 | 18953 | 0 | 18953 |
| Grattan Canal | | | | | | | | 1349 | 958 | 1113 | 1125 | 627 | 5172 | 0 | 5172 |
| Rock Ranch Canal | | | | | | | | 2535 | 2523 | 3068 | 2477 | 1920 | 12523 | 0 | 12523 |
| Torrington Canal | | | | | | | | 2253 | 1615 | 2174 | 1980 | 1498 | 9520 | 0 | 9520 |
| North Platte Canal | | | | | | | | 2460 | 2477 | 3144 | 2886 | 2271 | 13178 | 0 | 13178 |
| Narrows Ditch | | | | | | | | 97 | 54 | 83 | 75 | 16 | 325 | 0 | 325 |
| Ferris No. 1 Ditch | | | | | | | | NO | RECORD | | | | | | |
| French Canal | | | | | | | | 1295 | 881 | 1226 | 1220 | 1073 | 5695 | 0 | 5695 |
| Mitchell Canal | 9412 | 9521 | 2261 | | | | 252 | 10470 | 8109 | 6480 | 4056 | 1414 | 51975 | 21446 | 30529 |
| TOTAL DIVERSIONS—NET | 9412 | 9521 | 2261 | 0 | 0 | 0 | 252 | 24287 | 20524 | 21411 | 17765 | 12268 | 117701 | 21446 | 96255 |
| RIVER AT STATE LINE | 28180 | 18430 | 23860 | 23530 | 21100 | 25300 | 23350 | 65640 | 82580 | 85550 | 59260 | 39520 | 496300 | 163750 | 332550 |

Tightly Bound

075-30-6297-17

COLORADO WATER CONSERVATION BOARD—Engineering Department — October, 1939

NORTH PLATTE RIVER BASIN INVESTIGATION

LIST OF WATER RIGHTS IN JACKSON COUNTY, COLORADO
IRRIGATION DIVISION NO. 1, WATER DISTRICT NO. 47

RESERVOIR DECREES

| Name of Reservoir | Source of Supply | Location Sec.-Twp.-Rge. | Decreed Date Mo. Da. Year | Amount Cu. Ft. | Remarks |
|---|---|---|---|---|---|
| **RESERVOIRS DIVERTING FROM NORTH PLATTE RIVER AND TRIBUTARIES** | | | | | |
| | BIG CREEK (left bank of North Platte River) | | | | |
| Big Creek (b) | South tributary of Big Creek | 9-16-11N-82W (a) | 12-31-1895 | 300,564.000 | (a) Decreed Secs. 9-10-15-16 (b) Same as Big Creek Lake |
| | SPRING CREEK (right bank of Big Creek) (in Wyoming) | | | 6900 a. f. | |
| | SIX MILE CREEK (left bank of Spring Creek) | | | | |
| Wills | Flood waters from side of mountain, and through ¼ mile of ditch | 27-12N-81W | 7- 1-1917<br>7- 1-1917 | 1,692,900<br>397,100* | * Provisional Decree |
| | THREE MILE CREEK (left bank of North Platte River) | | | | |
| Hunter | Three Mile and So. Fk. Three Mile Crks. | 28-12N-80W* | 12-31-1914 | 5,963,225 | * No location given in decree. |
| | FISCHER DRAW (left bank of North Platte River) | | | | |
| P. W. Fischer | Fischer Draw and Tributaries* | 28-11N-80W | 10-20-1906 | 1257,996 | * Source not given in decree. |
| | MICHIGAN RIVER (right bank of North Platte River) | | | | |
| | ILLINOIS RIVER (left bank of Michigan River) | | | | |
| | POTTER CREEK (left bank of Illinois River) | | | | |
| Case No. 1 | Illinois River through Hubbard No. 2 Ditch and Waste Water* | 13-24- 8N-80W | 7-26-1908 | 5,413,593 | * On tributary to Potter Creek. |
| Case No. 2 | Illinois River through Hubbard No. 2 Ditch and Waste Water* | 13-14- 8N-80W | 7-27-1908 | 4,610.797 | * On tributary to Patter Creek. |
| Case No. 3 | Illinois River through Hubbard No. 2 Ditch and Potter Creek through Potter Ditch | 15- 8N-80W | 7-26-1912<br>7-26-1912 | 396,132<br>2,498,634* | * Provisional Decree |
| State Walden Reservoir and Pipe Line | Spring which is main source of supply of Potter Creek | 15- 8N-80W | 6-15-1925 | 1,653,000 | For fish propagation and culture and domestic consumption only. |
| | WILLOW CREEK (left bank of Illinois River) | | | | |
| Macfarlane | Willow and Illinois Crs. (a) | 28,29-30- 7N-79W | 10-20-1910 | 283,462,000 | (a) Supplied through Macfarlane and Macfarlane Extension Ditches |
| | LITTLE WILLOW CREEK (left bank of Willow Creek) | | | | |
| Darcy | Little Willow and Lost Creeks (b) | 16- 6N-79W (a) | 7- 9-1921 | 31,000,000 | (a) Decreed Sec. 9. (b) Supplied through Darcy ditch |
| Darcy | Little Willow and Lost Creeks | 16- 6N-79W (b) | 7- 9-1921 | 74,469.250(a) | (a) Provisional Decree (b) Decreed Sec. 9 |
| | EAST BRANCH WILLOW CREEK (right bank of Willow Creek) | | | | |
| Lake Roslyn | Howd and Little Willow Creek through Dora or Little Dora Ditches | 10- 5N-78W | 9-12-1936 | 12,622,350* | * Provisional Decree. For propagation of fish and water fowl, bathing, swimming and boating, fishing, and other recreational uses, and domestic use. |
| | BADGERO CREEK (left bank of Illinois River) | | | | |
| | HOWD CREEK (HOWD DRAW) (left bank of Badgero Creek) | | | | |
| Lake Roslyn | (See Lake Roslyn on E. branch of Willow Creek) | | | | |
| | NORTH FORK OF NORTH PLATTE RIVER (left bank of North Platte River) | | | | |
| | LAKE CREEK (SCRIBNER CREEK) (left bank of North Fork of North Platte River) | | | | |
| Boettcher Lake | North Fork River through Little Nellie Ditch, and Lake Creek | 20-10N-81W | 7- 1-1887 | 28,684,801 | |
| | ROARING FORK OF NORTH PLATTE RIVER (left bank of North Platte River) | | | | |
| Butte* | Roaring Fork through Wolfer Ditch or Mallon Ext. of Wolfer Ditch | 2- 8N-81W and 35-36- 9N-81W | 6- 1-1922 | 40,717,702 | * Same as South and East Delaney Lakes |
| | JUNCTION LITTLE GRIZZLY AND BIG GRIZZLY CREEKS. | | | | |
| | LITTLE GRIZZLY CREEK (left bank of North Platte River) | | | | |
| | SOUTH FORK LITTLE GRIZZLY CREEK (right bank of Little Grizzly Creek) | | | | |
| Gamber* | Little Grizzly Creek and Waste Water from Gamber-Brinker Ditch | 21-22- 7N-81W 27-28 | 7-10-1925 | 18,142,645 | * Same as Pole Mountain Lake. |
| | CROSBY CREEK (right bank of South Fork of Little Grizzly Creek) | | | | |
| | TRIBUTARY TO CROSBY CREEK (left bank of Crosby Creek) | | | | |
| Stanbaugh | Watershed Tributary to Little Grizzly Creek | 4- 9- 6N-82W* | 5-28-1913 | 1,484,820 | * S. E. Records no location. |
| | TRIBUTARY TO CROSBY CREEK (left bank of Crosby Creek) | | | | |
| Ross (a) | Melting Snow and rain<br>and through proposed inlet ditch to be constructed from Crosby Creek | 9- 6N-82W<br>9- 6N-82W | 6-26-1911<br>6-26-1911 | 3,581,648<br>21,361,669* | (a) Same as Hidden Lakes<br>* Provisional Decree |
| | BIG GRIZZLY CREEK (right bank of North Platte River) | | | | |
| | SOAP CREEK (right bank of Big Grizzly Creek) | | | | |
| Macfarlane | See Macfarlane—Willow Creek | | | | |
| | BUFFALO CREEK (right bank of Big Grizzly Creek) | | | | |
| | COYOTE CREEK (left bank of Buffalo Creek) | | | | |
| Slack and Weiss | See Slack and Weiss, Ninegar Creek (Arapahoe Creek Basin) | | | | |
| | LOST CREEK (right bank of Buffalo Creek) | | | | |
| Darcy | See Darcy—Little Willow Creek | | | | |
| | TRIBUTARY TO BUFFALO CREEK (right bank of Buffalo Creek) | | | | |
| Clayton | Buffalo Creek | 7- 6N-79W)<br>12- 6N-80W) | 9-15-1904<br>9-15-1904 | 42,000<br>1,626,701* | * Provisional Decree |
| | TRIBUTARY TO BUFFALO CREEK (left bank of Buffalo Creek) | | | | |
| Buffalo | Buffalo Creek through the Van Patten Ditch | 29-30- 6N-79W | 9- 1-1898 | 4,447.476 | |
| | ANDERSON DRAW (COW CREEK) (left bank of Big Grizzly Creek) | | | | |
| Fuller | Cow Creek | 2- 6N-81W | 7- 7-1908 | 362,949 | |
| | MEXICAN CREEK (left bank of Big Grizzly Creek) | | | | |
| | MIDDLE FORK OF MEXICAN CREEK (right bank of Mexican Creek) | | | | |
| Mexican | Mexican Creek and Runoff Water | 9- 6N-81W | 6- 1-1915 | 6,696,800 | |
| | ARAPAHOE CREEK (right bank of Big Grizzly Creek) | | | | |
| | NINEGAR CREEK (right bank of Arapahoe Creek) | | | | |
| Slack and Weiss | Ninegar Creek through Slack and Weiss Ditch | 3- 5N-80W | 6- 3-1890 | 350,000 | |

Compiled from official records of 8th Judicial District, State of Colorado.
Streams and Reservoirs listed in order of location. All locations are west of 6th Principal Meridian.

Sheet 1 Colorado Exhibit 127

COLORADO WATER CONSERVATION BOARD—Engineering Department

## CONSUMPTION OF WATER RESOURCES OF NORTH PLATTE RIVER
## COLORADO - WYOMING - NEBRASKA
### Averages for 1895-1939

| SUMMARY | Water Consuming Areas (Acres) | Unit Rate A.F. Per Acre | Exported From River Basin | Retained In Ground Storage | Consumed Incident To Irrigation | Lost In River Conveyance | Totals Exported, Retained, Lost and Consumed |
|---|---|---|---|---|---|---|---|
| BASIN TOTALS | 1,098,743 | | 27,880 | 145,400 | 899,590 | 546,040 | 1,618,910 |
| COLORADO—TOTALS | 136,643 | | 27,880 | — | 89,090 | 27,230 | 144,200 |
| JACKSON CO. (Exh. 56) | 130,908 | | 3,100 | — | 85,850 | 24,930 | 113,880 |
| Exported | | | 3,100 | | | | |
| IRRIGATION | 115,328 | 0.75 | | | 85,850 | | |
| Lands | 115,070 | 0.74 | | | 85,150 | | |
| Reservoirs | 258 | 2.70 | | | 700 | | |
| CONVEYANCE | 15,580 | 1.60 | | | | 24,930 | |
| Rivers-Lakes | 4,866 | 2.70 | | | | 13,140 | |
| Bottoms | 10,714 | 1.10 | | | | 11,790 | |
| LARIMER COUNTY | 5,735 | | 24,780 | | 3,240 | 2,300 | 30,320 |
| Exported | | | 24,780 | | | | |
| IRRIGATION | 4,050 | 0.80 | | | 3,240 | | |
| Lands | 4,050 | 0.80 | | | 3,240 | | |
| Reservoirs | — | — | | | — | | |
| CONVEYANCE | 1,685 | 1.37 | | | | 2,300 | |
| Rivers-Lakes | 185 | 2.70 | | | | 500 | |
| Bottoms | 1,500 | 1.20 | | | | 1,800 | |
| WYOMING TOTALS | 569,560 | | — | 17,500 | 483,310 | 248,810 | 749,620 |
| COLO. LINE-PATHFINDER | 206,830 | | — | — | 128,930 | 119,600 | 248,530 |
| IRRIGATION | 131,850 | 0.98 | | | 128,930 | | |
| Lands | 125,800 | 0.98 | | | 113,200 | | |
| Reservoirs | 6,050 | 2.60 | | | 15,730 | | |
| CONVEYANCE | 74,980 | 1.66 | | | | 119,600 | |
| Rivers-Lakes | 17,020 | 2.60 | | | | 44,250 | |
| Bottoms | 57,960 | 1.30 | | | | 75,350 | |
| PATHFINDER - WHALEN | 82,020 | | | | 64,850 | 54,400 | 119,250 |
| IRRIGATION | 54,260 | 1.19 | | | 64,850 | | |
| Lands | 51,030 | 1.10 | | | 56,130 | | |
| Reservoirs | 3,230 | 2.70 | | | 8,720 | | |
| CONVEYANCE | 27,760 | 1.96 | | | | 54,400 | |
| Rivers-Lakes | 10,630 | 2.70 | | | | 28,700 | |
| Bottoms | 17,130 | 1.50 | | | | 25,700 | |
| WHALEN - NEBR. LINE | 280,710 | | | 17,500 | 289,530 | 74,810 | 381,840 |
| GROUND STORAGE | | | | 17,500 | | | |
| IRRIGATION | 240,900 | 1.20 | | | 289,530 | | |
| Lands | 229,600 | 1.13 | | | 260,400 | | |
| Reservoirs | 11,300 | 2.58 | | | 29,130 | | |
| CONVEYANCE | 39,810 | 1.88 | | | | 74,810 | |
| Rivers-Lakes | 12,740 | 2.53 | | | | 32,210 | |
| Bottoms | 27,070 | 1.58 | | | | 42,600 | |
| NEBRASKA TOTALS | 392,540 | | | 127,900 | 327,190 | 270,000 | 725,090 |
| GROUND STORAGE | | | | 127,900 | | | |
| IRRIGATION | 257,040 | 1.27 | | | 327,190 | | |
| Lands | 254,900 | 1.26 | | | 321,200 | | |
| Reservoirs | 2,140 | 2.80 | | | 5,990 | | |
| CONVEYANCE | 135,500 | 1.99 | | | | 270,000 | |
| Rivers-Lakes | 36,100 | 2.80 | | | | 101,000 | |
| Bottoms | 54,700 | 1.70 | | | | 93,000 | |
| Sub-Lands | 44,700 | 1.70 | | | | 76,000 | |

(Page 162)

NEBR. v. WYO. and Colo.
UNITED STATES INTERVENER
COLO. EXHIBIT NO. 127
089-41-91655-1

COLORADO WATER CONSERVATION BOARD—Engineering Department

## CONSUMPTION OF WATER RESOURCES OF NORTH PLATTE RIVER
## COLORADO - WYOMING - NEBRASKA
### Averages for 1895-1939

| WYOMING SEGREGATIONS | Water Consuming Areas (Acres) | Unit Rate A.F. Per Acre | Exported From River Basin | Retained In Ground Storage | Consumed Incident To Irrigation | Lost In River Conveyance | Totals |
|---|---|---|---|---|---|---|---|
| WHALEN to NEBR. LINE | 280,710 | — | — | 17,500 | 289,530 | 74,810 | 381,840 |
| NO. PLATTE RIVER DIRECT | 52,330 | | | 17,500 | 53,900 | 17,180 | 88,580 |
| TRIBUTARIES (Excl. Laramie) | 41,110 | — | — | — | 38,520 | 16,830 | 55,350 |
| LARAMIE BASIN | | | | | | | |
| COLO. LINE - LOOKOUT | 114,010 | | | | 106,100 | 27,800 | 133,900 |
| IRRIGATION | 101,320 | 1.05 | | | 106,100 | | |
| Lands | 98,800 | 1.01 | | | 99,800 | | |
| Reservoirs | 2,520 | 2.50 | | | 6,300 | | |
| CONVEYANCE | 12,690 | 2.20 | | | | 27,800 | |
| Rivers-Lakes | 9,120 | 2.50 | | | | 22,800 | |
| Bottoms | 3,570 | 1.40 | | | | 5,000 | |
| LOOKOUT - FT. LARAMIE | 73,260 | | | | 91,010 | 13,000 | 104,010 |
| IRRIGATION | 65,950 | 1.38 | | | 91,010 | | |
| Lands | 59,600 | 1.25 | | | 74,500 | | |
| Reservoirs | 6,350 | 2.60 | | | 16,510 | | |
| CONVEYANCE | 7,310 | 1.78 | | | | 13,000 | |
| Rivers-Lakes | 1,310 | 2.60 | | | | 3,400 | |
| Bottoms | 6,000 | 1.60 | | | | 9,600 | |
| NEBRASKA SEGREGATIONS | | | | | | | |
| WYO. LINE to NO. PLATTE | 392,540 | | — | 127,900 | 327,190 | 270,000 | 725,090 |
| NO. PLATTE RIVER DIRECT | 306,240 | | | 127,900 | 295,640 | 131,900 | 555,440 |
| GROUND STORAGE | | | | 127,900 | | | |
| IRRIGATION | 231,940 | 1.27 | | | 295,640 | | |
| Lands | 229,800 | 1.26 | | | 289,650 | | |
| Reservoirs | 2,140 | 2.80 | | | 5,990 | | |
| CONVEYANCE | 64,300 | 2.05 | | | | 131,900 | |
| Rivers | 20,600 | 2.80 | | | | 57,600 | |
| Bottoms | 43,700 | 1.70 | | | | 74,300 | |
| TRIBUTARIES | 96,300 | | — | — | 31,550 | 138,100 | 169,650 |
| IRRIGATION | 25,100 | 1.26 | | | 31,550 | | |
| Lands | 25,100 | 1.26 | | | 31,550 | | |
| Reservoirs | — | — | | | — | | |
| CONVEYANCE | 71,200 | 1.94 | | | | 138,100 | |
| Rivers-Lakes | 15,500 | 2.80 | | | | 43,400 | |
| Bottoms | 11,000 | 1.70 | | | | 18,700 | |
| Sub-Lands | 44,700 | 1.70 | | | | 76,000 | |



089-41-91655-3